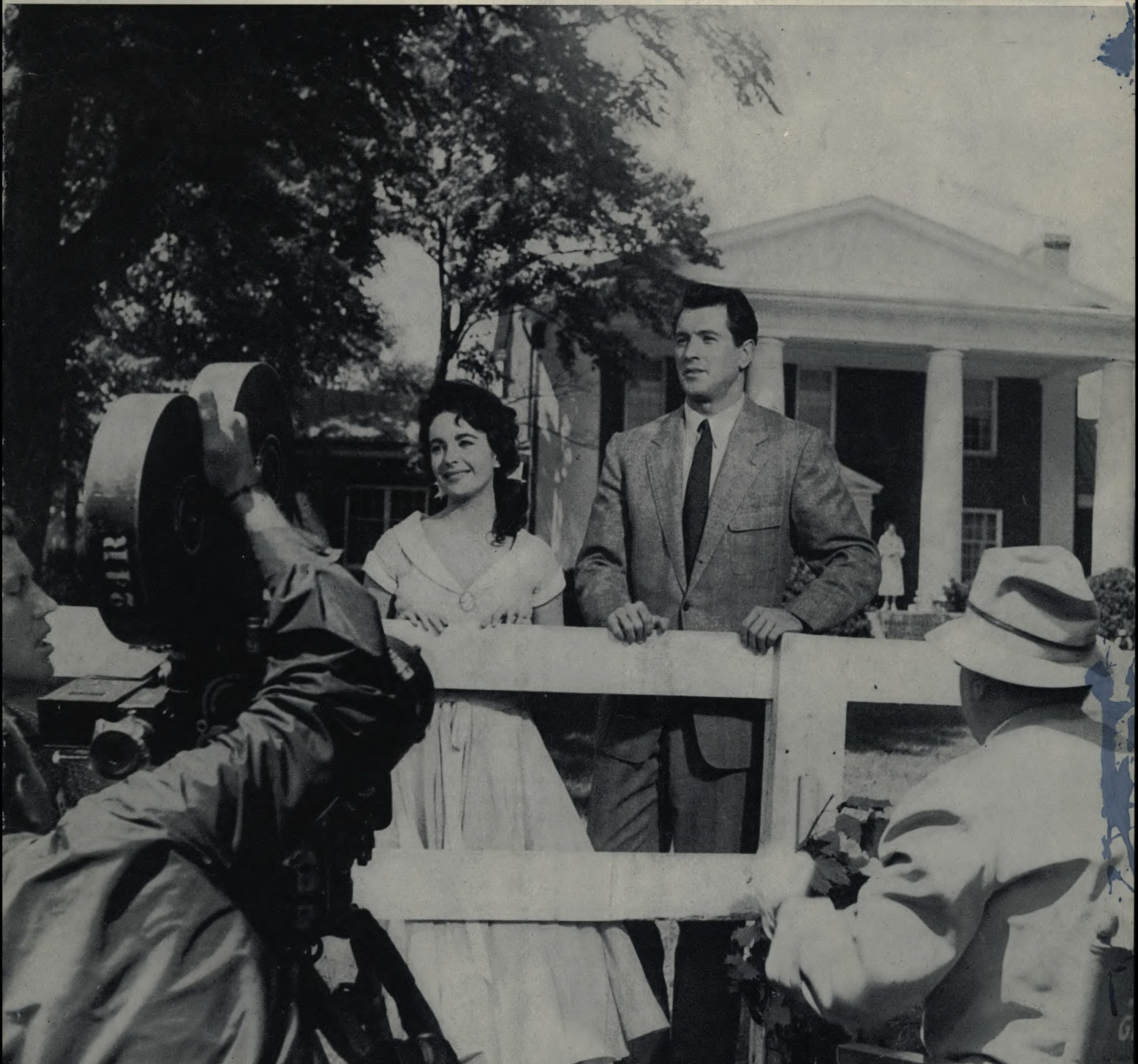
AMERICAN

Cinematographer

SEPTEMBER • 1955

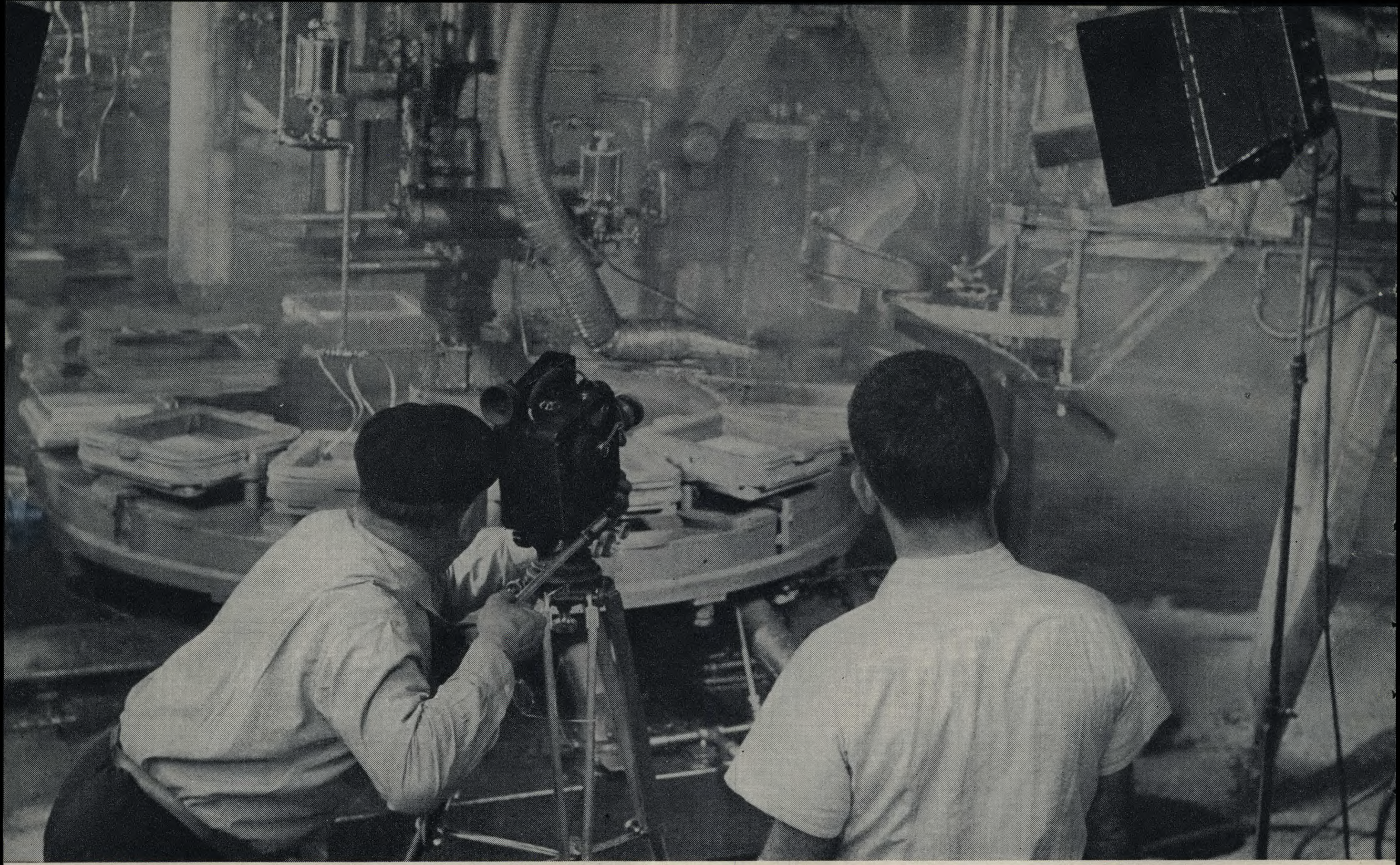
THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY



n This Issue . . .

- Exposure Determination for Variable Shutter Speeds
- Make-up For Today's Color Films
- Pre-printing Preparation of 16mm Films

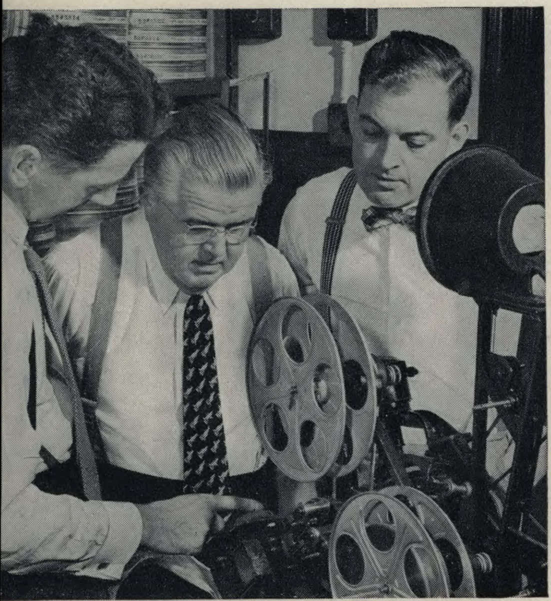
25c
FOREIGN 35c



VETERAN CAMERAMAN MARCEL REBIERE, left, and Assistant Fred Montague are working in extreme heat as they film glass-block production. "We always shoot with 'Superior' 2," comments Rebiere, who shot the first "March of Time," "because the film is so good that it performs perfectly no matter what temperatures we run into while telling the photo story of American industry."

"We couldn't shoot in extremes of light and temperature without **Du Pont 'Superior' 2 Film!"**

says **Arthur J. Lodge, Jr.,** *Producer of the Peabody Award Winner "Industry on Parade."*



IN CUTTING ROOM, Producer Arthur Lodge, left, shows product to G. W. "Johnny" Johnstone, center, Radio-Television Public Relations Director of the National Association of Manufacturers—sponsors of "Industry on Parade." At right, N.A.M.'s Newsreel Editor Roger Young is impressed with finished film . . . the result of using "Superior" 2.

"On the same day I've had one crew contending with 200° heat in a steel mill while another was filming at 20° below zero in a bakery's bread-freezing room," recalls Arthur Lodge. "But rugged 'Superior' 2 keeps our cameras rolling in every conceivable location: planes, submarines, coal and iron mines, steel mills and rubber plants. Its consistent speed and gradation enable us to shoot with confidence far ahead of our lab schedule."

It takes 20 cameramen shooting film at the rate of 4,000 feet a week to keep more than 241 television stations supplied with the popular "Industry on Parade" 15-minute program.

"Our crews get film shipped to them from Du Pont offices all over the country," Producer Lodge goes on. "Both before and after exposure the film is subjected to intense heat and cold . . . to dampness and rough riding in auto trunks. Yet, frame for frame, the results are always consistent enough to run on the same reel.

"Another advantage of using Du Pont Film is the customer service extended by Du Pont representatives. It means so much whenever we need broken lots or superfast delivery."

FOR MORE INFORMATION about "Superior" 2 and other Du Pont Films . . . write or call the nearest District Office (listed below) or the Du Pont Company, Photo Products Department, Wilmington 98, Delaware. In Canada: Du Pont Company of Canada Limited, Montreal.

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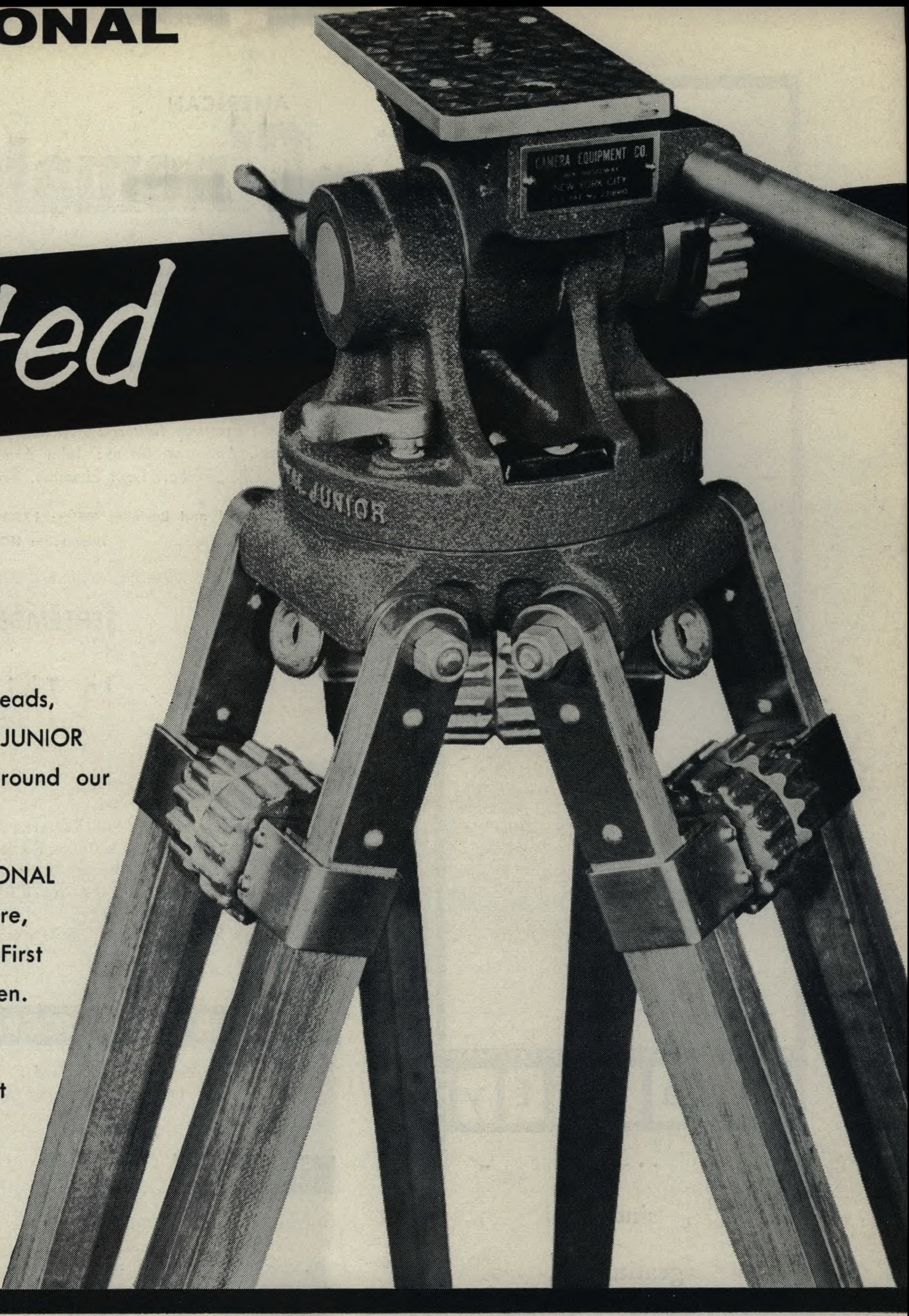

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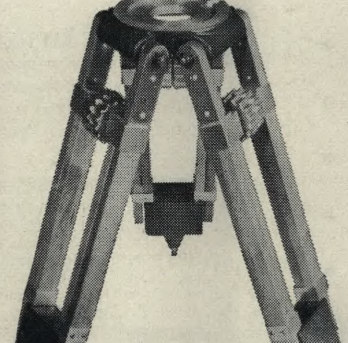

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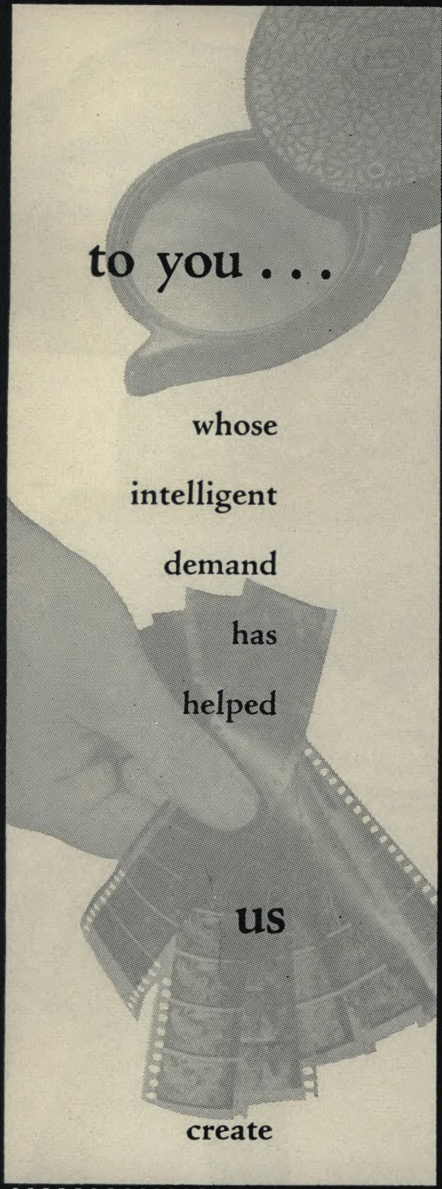

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AMERICAN

Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY
PUBLICATION OF THE AMERICAN SOCIETY OF CINEMATOGRAPHERS

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ON THE COVER

CINEMATOGRAPHER William Mellor, A.S.C. and his camera assistants line up a closeup shot of Elizabeth Taylor and Rock Hudson for "Giant," which producer-director George Stevens (right) is producing for Warner Brothers. Stately Virginia manor house near Charlottesville provides background for the romantic action here. *Photo by Floyd McCarty.*

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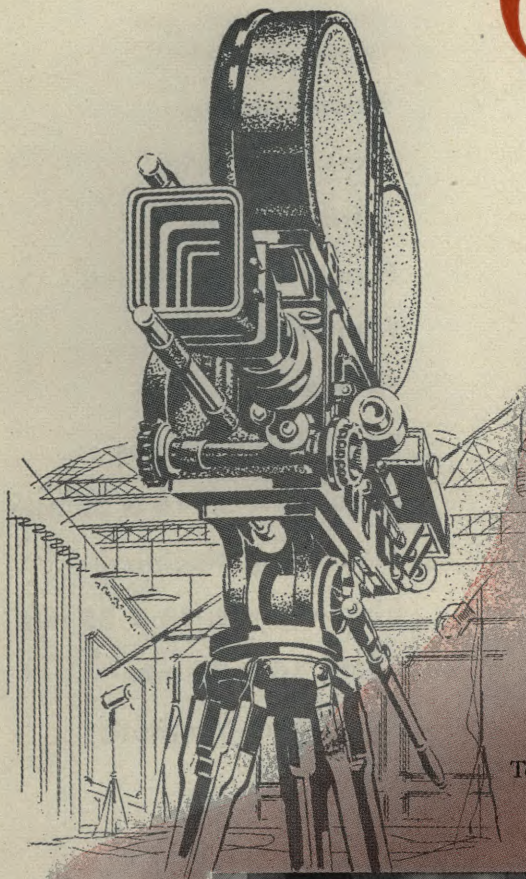


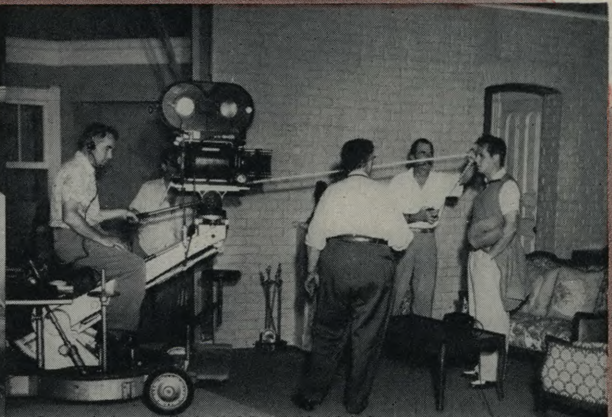
Mitchell CAMERAS

THE matchless technical perfection which a Mitchell camera brings to a film can insure the investment as can no other single element of production.

For over 25 years constant research and engineering by Mitchell has continued to produce, year after year, the most advanced and only truly professional motion picture camera. It is traditional of Mitchell cameras that in addition to filming the world's greatest films, they are to be found wherever new and exacting techniques of filming are being successfully used.

Mitchell cameras are today dependably serving such varied fields as Television, Business and Industry, Education, Government, the Armed Services, and major Motion Picture Studios.

Tom Kelley Studios shoots a TV commercial for North American Airlines with this Mitchell 35 "NC". Ceasar Romero is shown at center.



One of three Mitchell 35mm "BNC" Cameras used by Desilu Productions on the "I Love Lucy" series with Desi Arnaz, right, and Lucille Ball.

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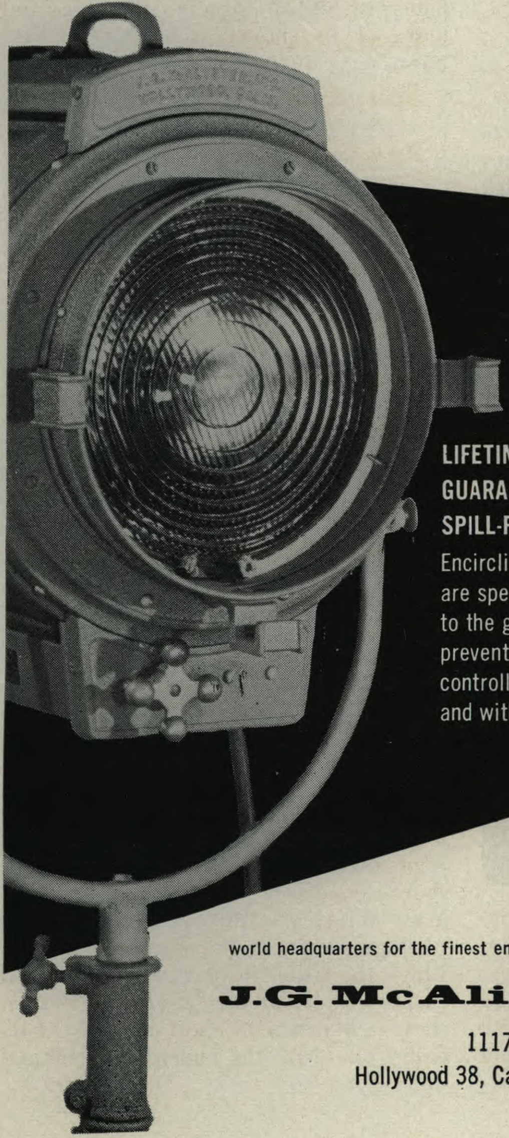

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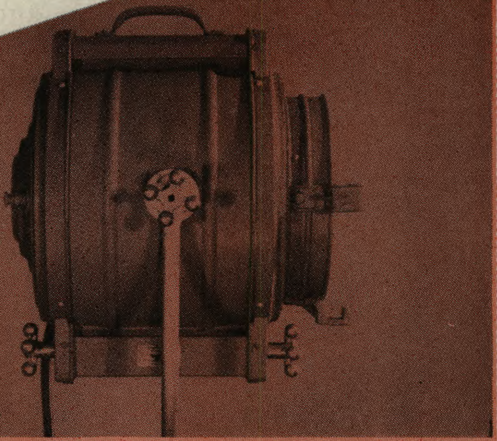

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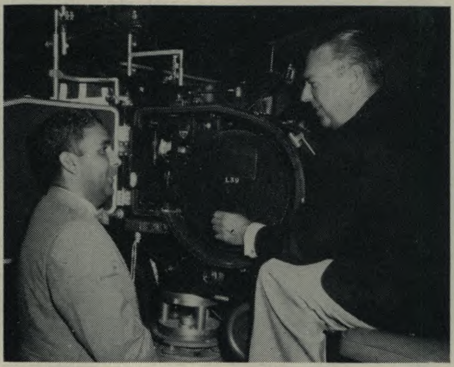


TWO PRIZE CAMERAMEN—Loyal Griggs, A.S.C., (right) Academy Award winning cinematographer, was visited on the set of "The Ten Commandments" at Paramount Studio last month by Paramount Newsreel cameraman V. Parkash, who won Britain's Academy Award for his camera coverage of the funeral of Mahatma Ghandi. Parkash is en route back to New Delhi, India after a year on loan to the United Nations in New York. Here Griggs shows him the new VistaVision camera.

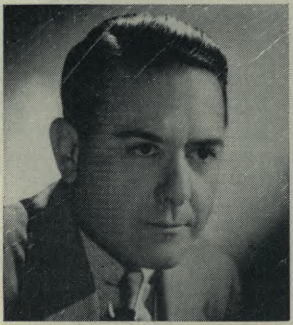
• • •

The A.S.C., last month, admitted to membership Ray Foster (Active), Norwood L. Simmons, of Eastman Kodak Co. (Associate), and Walter F. Farley, Jr., of Eastman Kodak Co. (Associate).

• • •

Mack Stangler, A.S.C. is again shooting the "Liberace Show" for Guild Films, Inc. Stengler directed the photography of this popular TV film show last season, and will shoot it this year in addition to the "Ina Ray Hutton Show" and "It's Fun to Reduce," also for Guild.

• • •



WILLIAM SKALL A.S.C.

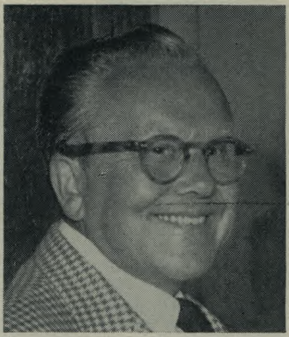
William Skall, A.S.C. is the latest top-flight feature film director of photography to swing to TV film production. Skall has been signed to photograph the "Father Knows Best" series of TV films for Screen Gems, producing at Columbia Studio, Hollywood.

Leon Shamroy, A.S.C., three-time Academy Award winner, played a hero's role on the set last month when he took the brunt of a blow from a falling spotlight lens, which otherwise would have injured actress Jennifer Jones. Incident occurred during shooting of scene for 20th Century-Fox's "Good Morning, Miss Dove," directed by Henry Koster and starring Miss Jones.

• • •

Philip Tannura, A.S.C., started his fifth consecutive year as director of photography of "The Burns and Allen Show" when the company started shooting its new series at General Service Studio last month. Shooting of first show in the 1955-56 series was marked by innovation of using background projection—rare for TV film production. Company plans to utilize system in more and more of its shows, according to Tannura.

• • •



CHARLES ROSHER A.S.C.

Charles Rosher, A.S.C., was cited last month by Photographer's Association of America "for his artistry and skill as the cinematographer who brought to the screen a host of motion picture classics; for his activity as a founder of the American Society of Cinematographers; and in recognition of his long membership in the PAA, reaching back to the turn of the century."

• • •

Dan Clark, A.S.C., photographed the pilot film of Edgar Bergen's new TV show, tentatively titled "Do You Trust Your Wife?" A quiz-type show, it was photographed in the same studio in which the Groucho Marx show is filmed each week. Like the latter, the Bergen show is filmed with eight cameras (4 on and 4 off) with the audience participating.

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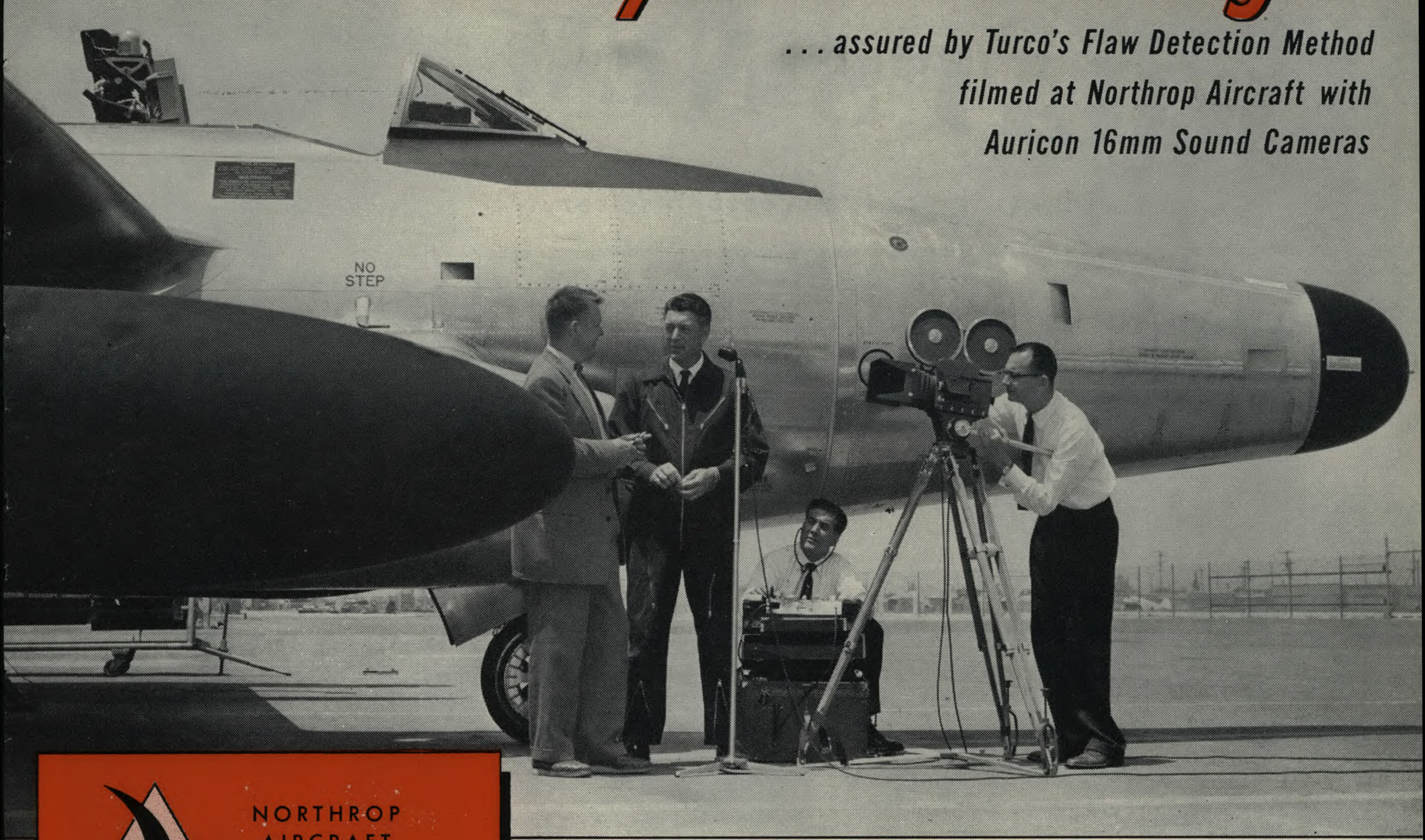


NORTHROP AIRCRAFT

AURICON

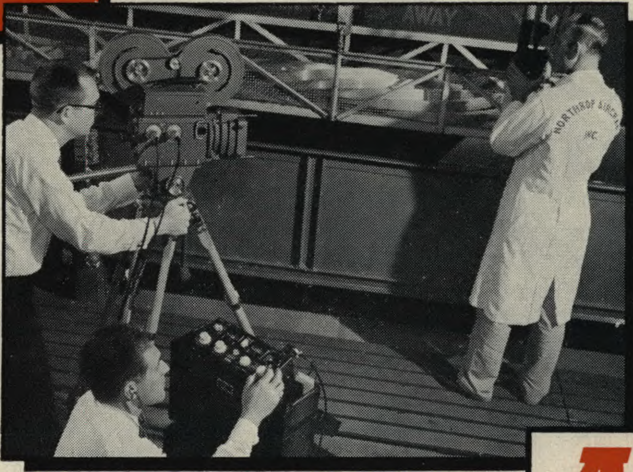
TURCO Products

Cralen Enterprises, Inc., filming William Cox of Northrop Public Relations, as he interviews Robert Love, jet ace, after test flight in Northrop F-89 all-weather interceptor.

The full story of flaw detection in metals with Turco "Dy-Chek" Dye Penetrant is the subject of a new Training Movie in sound and color, filmed at Northrop Aircraft with Auricon 16mm Sound-On-Film Cameras.

The film shows how "Quality-Control" checks metal parts for the Northrop F-89 all-weather jet interceptor right on the production line, with Turco's "Dy-Chek" inspection process!

Turco's new Training Movie on "Dy-Chek" Flaw-Inspection Process, is shown during filming at Northrop Aircraft, with Craig Curtis (at camera) and Lennie Blondheim, both of Cralen Enterprises, Inc., Hollywood, California.



This film is another example of how Training Movies and Industrial Motion Pictures can be produced with precision and fidelity using Auricon 16mm Sound Cameras. Professional Auricon Built-in Features, include Self-blimping Camera design, Synchronous Motor Drive, Auricon-Electromatic Take-up, etc. Many producers and cameramen have named Auricon..."the finest 16mm Sound Camera ever built!"

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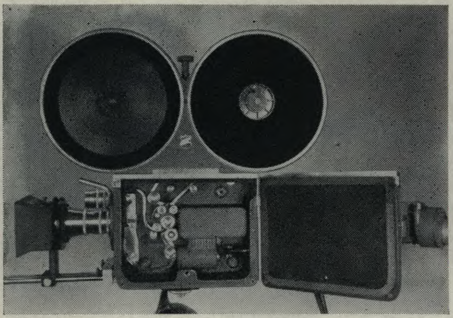


Cine-Voice Conversion

Filmtronics, Inc., 96 Huntington St., New London, Conn., offer a 400-ft. conversion of the Auricon Cine-Voice camera for newsreel, TV film and other professional uses.

The camera is cut down to the lowest possible point to minimize strain on the motor. The case is squared off at the ends for improved appearance and compactness and to enhance the camera's overall styling.

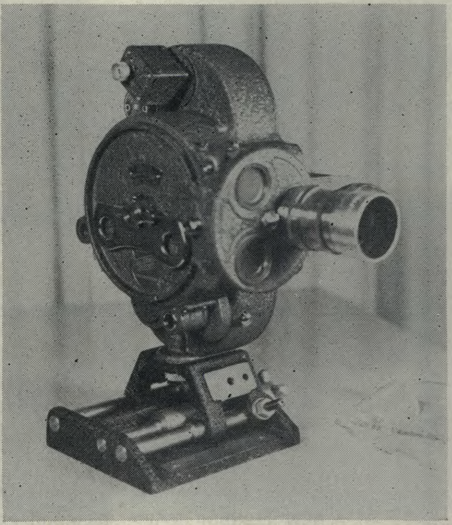
Features include 400-ft. magazine affording 10 minutes continuous recording; no extra motor drive; hinged door; improved footage counter; internal blimping; neon signal light; sound track exposure lamp switches off and on automatically with camera motor; turret rotating handle; and improved film guide rollers.

List price is $695 with 400-ft. magazine, $513 without magazine.

Cooler Projection Lamp

Sylvania Electric Products, Inc., announce a new ceramic-top projection lamp for home movie and slide projectors. Tradenamed the Blue Top projection lamp, because of a jewel-hard ceramic "bonnet" bonded to the glass, the lamp concentrates maximum light opposite the lens, creating a brighter, clearer image on the screen.

The blue ceramic "bonnet" is baked on and will not chip, scratch or peel, even after many hours of steady operation. This "bonnet" innovation dissipates heat more efficiently and prevents light leakage. New lamp is available in a full range of sizes and types to fit all projectors.

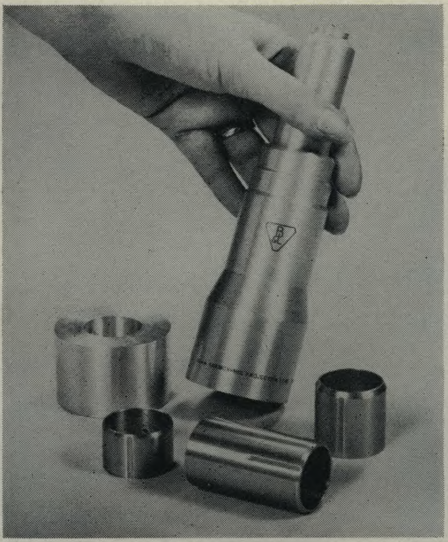


Rack-over for B&H Cameras

Cine Products Co., P.O. Box 135, Westlake, Ohio, offers a precision rack-over for Bell & Howell model 70 cameras, which is also adaptable to the Bolex H-8 and H-16 cameras. Device mounts on standard tripods. Cam locks in position to avoid accidental loss of field. List price is $28.50.

Video Film Labs Move

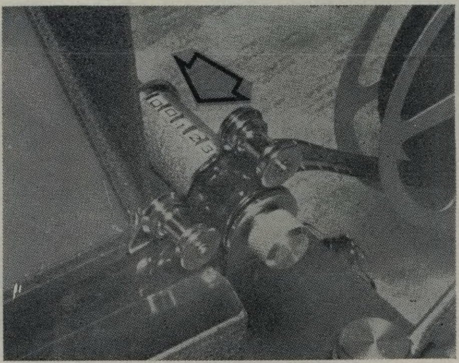
Video Film Laboratories, which since 1949 has been servicing east coast film makers with 16mm reversal processing, and 16mm negative and positive film developing, have moved to larger quarters from 131 West 23rd St., N. Y. City, to 350 West 50th Street, New York, N. Y.



16mm CinemaScope Lens

A 16mm CinemaScope projection lens adaptable to all popular 16mm projectors is offered by Bausch & Lomb Optical Co., Rochester, N. Y. Lens is a combination prime and anamorphic single-barrel lens and is offered in 2-inch focal length. It may be had in other focal lengths on order.

Lens requires no brackets or supports, is 6⅞" in length and weighs 7¾ ounces. List price with one adapter is $124.50. (Cut shows lens with an assortment of adapters.)



Editor Frame Counter

For use by Methods Engineers and others who use 16mm motion pictures for time and motion study, an accessory frame counter is now available for the Craig Projecto-Editor, Model KE-16. Each unit digit on the counter will either add or subtract. Counter can be set at zero. List price is $37.50. Manufacturer is the Kalart Company, Inc., Plainville, Conn.

Anti-static Solution

Anti-Stat #6 is tradename of product announced by Braun Laboratories recommended for use in eliminating dust and static from all metal, glass, plastic and film surfaces. Packed in 12-oz. aerosol spray can, list price is $2.95.

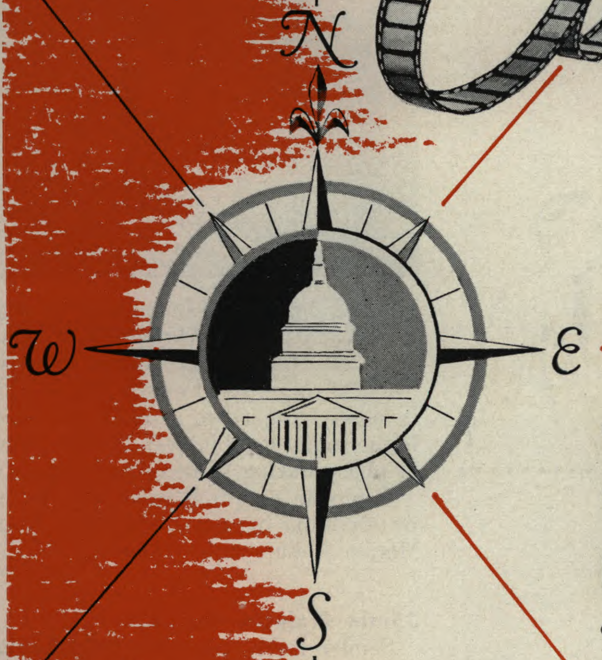
16mm Continuous Projector

A new 16mm projector designed to improve quality of TV film programs by providing a continuous, uniformly-illu-

(Continued on Page 512)

THE NATION'S

"Capital"



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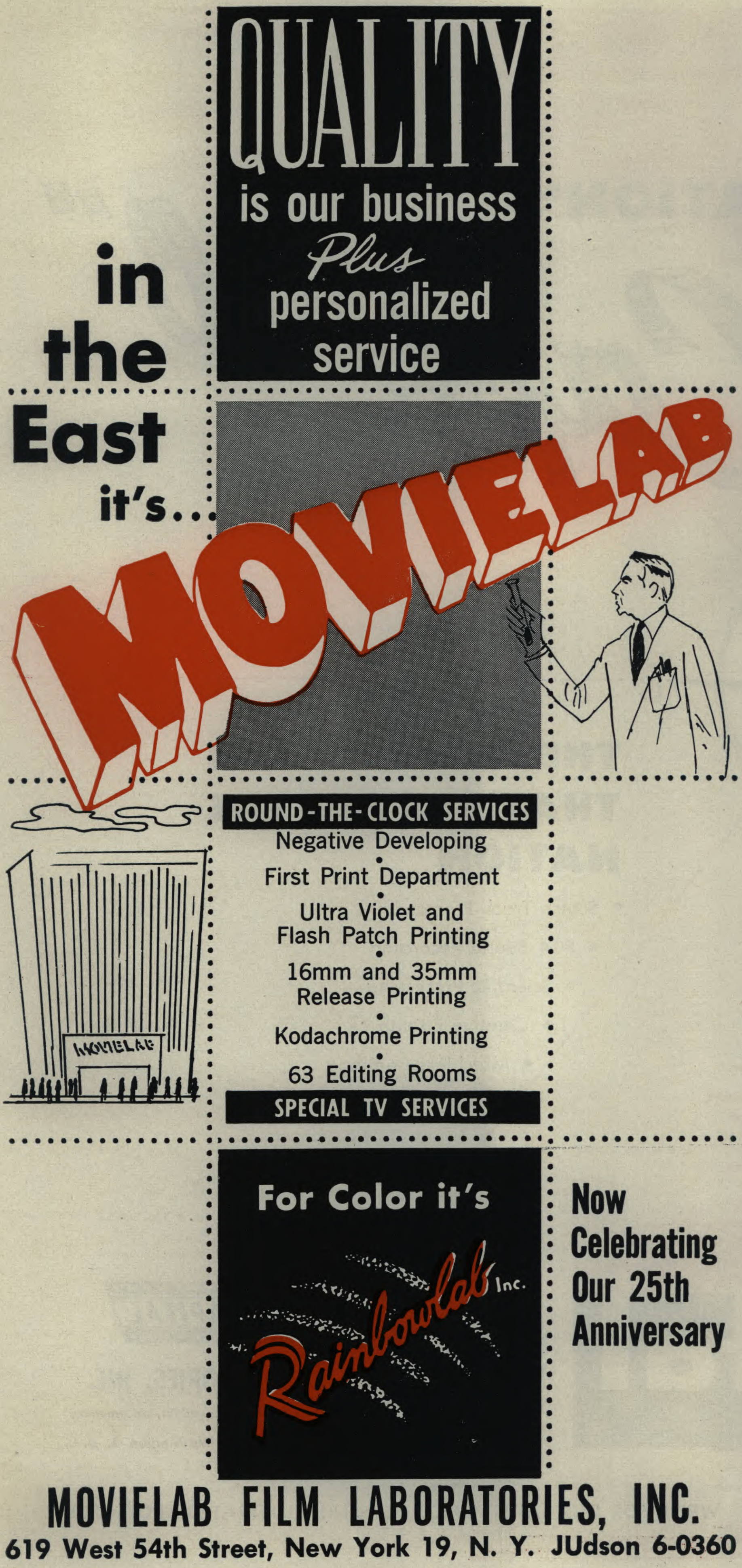

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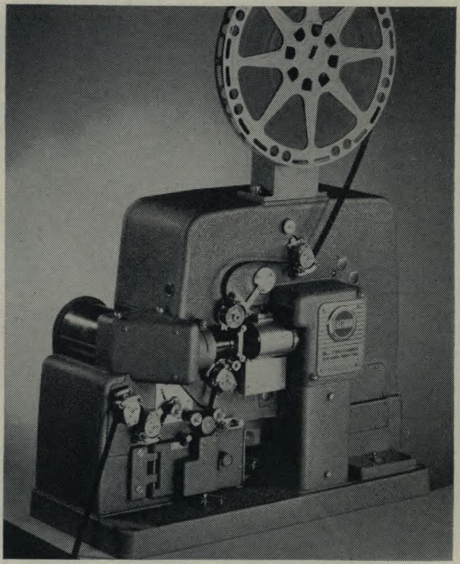
(Continued from Page 510)



minated image, is announced by Eastman Kodak Co., Rochester, N. Y. Operating at 24 f.p.s., mechanism is driven by 1800 r.p.m. synchronous motor which is loosely coupled to a small sync motor in the sound head to keep the two motors in phase during starting and stopping.

Complete data and price may be had by directing inquiry to Eastman Kodak Motion Picture Sales Dept.

35mm Projector Bargain

Semler Industries, Inc., 6853 Lankershim Blvd., North Hollywood, Calif., offers a limited number of U. S. Navy surplus 35mm Holmes projectors at the bargain price of $114.50. Machines are in first class shape, ready for instant use, have mazda lamps, and standard film magazines, but no amplifier or speaker.

8mm Reels and Cans

Eastman Kodak Company, through its retail outlets, are again making available 200- and 400-foot 8mm metal reels and cans for those who prefer metal instead of plastic. Cans are 50¢ and 80¢ each without reels, or $1.15 and $1.75 with reels.

Company states that the plastic reels and cans will continue to be available.

Filmline Processor

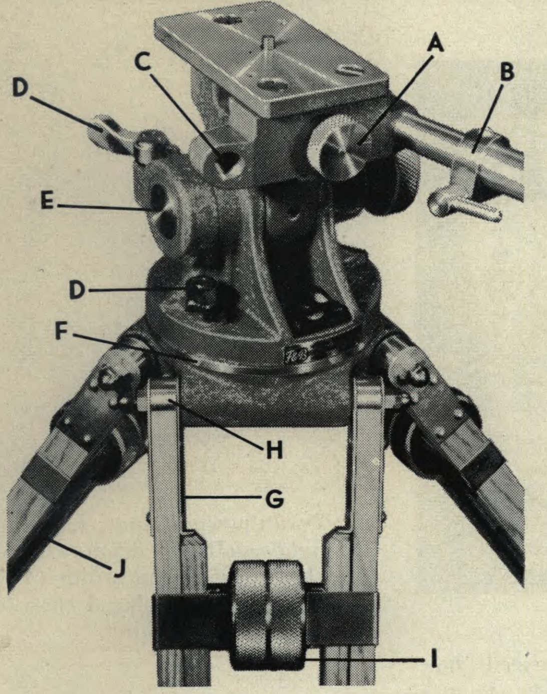
Filmline Corp., Erna St., Milford, Conn., announce its Model R15 16mm film processor with a capacity of 900 ft. per hour. Features include new type overdrive, removable magazines for daylight operation, and solution units re-

(Continued on Page 514)

F & B PRO CINE — THE MOST

IMPROVED

TRIPOD IN THE MEDIUM WEIGHT CLASS



FOR ALL CAMERAS

Does your tripod include these exclusive PRO CINE features?

A. External camera tightening knob with angle gears
B. Telescoping, offset tripod handle
C. Second tripod handle position
D. Large positive pan and tilt locks
E. Brass shaft for longer wear, no sticking
F. Separate, precision machined friction plate
G. Four bolted leg supports with leg rest ledge
H. Aluminum leg tops—no holes drilled thru wood legs
I. Single knob leg tightening—for even tension and no warping
J. Superb, seasoned and waxed hardwood legs, will never stick.

Finest Precision Craftsmanship and Materials

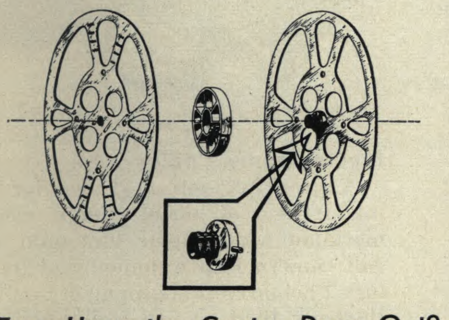
FRICTION HEAD UNCONDITIONALLY GUARANTEED FOR FIVE YEARS

MADE IN U.S.A.
EXCLUSIVELY BY F&B

Price **$145.00**
Heavy Duty Fibre Case **$20.00**

Available direct
or at leading camera dealers

F & B SPLIT REELS



Ever Have the Center Drop Out?

Eliminates FLANGES and risky TIGHTWINDS

Simply open Split Reels—slip in film on core and work with safety, speed and accuracy.

400 ft.	SPLIT	REEL		$4.50
800	"	"		6.00
1200	"	"		7.50
1600	"	"		9.00

IMMEDIATE DELIVERY

Now the

LARGEST STREET-LEVEL SHOWROOM IN NEW YORK

devoted exclusively to **MOTION PICTURE EQUIPMENT.** Some of the expanded facilities we will offer to film personnel are these:

COMPLETE RENTAL SERVICE . . . Cameras, lighting, editing, recording and grip equipment.

CONVENIENCE . . . Street-level, midtown location . . . Have your crews assemble at F&B.

EXPERIENCED TECHNICAL PERSONNEL . . . who understand your filming problems.

COMPLETE EQUIPMENT MAINTENANCE & ENGINEERING SHOPS . . . Staffed by expert technicians.

NEW CREDIT PURCHASE FACILITIES . . . extended time payment service, from 90 days to 36 months.

LOCATED IN MIDTOWN MANHATTAN. Near all transportation, hotels and recreation centers.

F&B EQUIPMENT CATALOG—24 Pages. Lists all equipment you need for film production.

F&B RENTAL PRICE LIST—16 Pages. Complete pocket-size list. Everything at your fingertips about the cost of renting equipment for Production, Projection, Recording, Lighting and Editing.

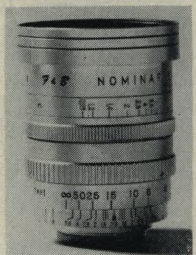
BOTH CATALOGS FREE FOR THE ASKING

SHOOTING COLOR IN A CAVE!

HUGE INDUSTRIAL INTERIORS

AUDIENCE REACTION SHOTS

COLOR NEWSREELS



F & B NOMINAR 1″ f/0.95 LENS

In C mount for all 16mm cameras
"THE FASTEST CINE LENS IN THE WORLD"
More than twice as fast as f/1.4

Definition, resolution and contrast as good or better than any comparable lens.

Price **$165.00** **$9.90** *FET*

Including—
Series VI filter holder, sunshade
Screw-on dust covers
Leather carrying case

F&B

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Phone: Murray Hill 2-2928
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ONE CAMERA

16mm or 35mm in 10 SECONDS!

Camerette 16/35

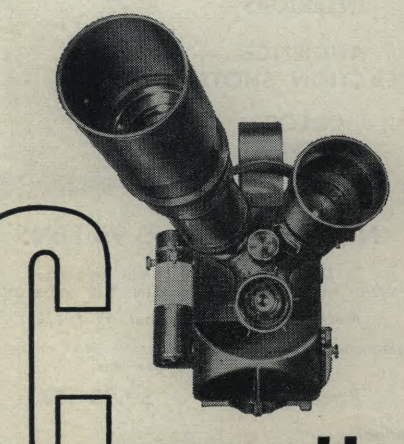
Reflex Motion Picture Camera

The perfect camera for the motion picture film maker working in both 16mm or 35mm color or black and white.

LOOK AT THESE ADVANTAGES—

- The same lenses, same motor drives, same sound blimp and accessory equipment used for both 16mm or 35mm — to convert simply change the magazine.
- Precise rugged movement
- Reflex viewing
- 200 degree adjustable shutter
- Divergent three lens turret
- Automatic film gate 400′ magazines 16 or 35mm — the 16mm magazine will accommodate daylight spools as well as standard core load.
- Light weight — only 14 pounds with 3 lenses, 400′ magazine, and 6/8 volt motor.

Write for brochure



Camerette

patents coutant-mathot

Manufactured by Ets. Cine. Eclair, Paris

FRANK C. ZUCKER
CAMERA EQUIPMENT CO.
1600 BROADWAY NEW YORK CITY

WHAT'S NEW IN EQUIPMENT, ACCESSORIES, ETC.

(Continued from Page 512)

movable for easy cleaning. Size of processor is 76″ by 48″ by 24″. Weight is 450 lbs., crated. Price is $2495, F.O.B. factory. Descriptive literature is available.

How to Add Sound to Your Home Movies
How to Act for Home Movies
How to Make Home Movies
How to Direct Your Own Movies
How to Plan a Home Movie Script
How to Edit Your Own Movies
How to Make Vacation Movies
How to Make 8mm Movies
How to Title Your Own Movies
How to Make Movie Cartoons
improve your pictures—with Books from
AMPHOTO

How-To-Do-It Books

A complete series of low-priced "how-to-do-it" books for amateur movie makers is announced by the American Photographic Book Publishing Co., Inc., 33 West 60th St., New York 23, N. Y.

Each of the 12 books have been written by photographic experts able to write about their advanced techniques in a way that can be understood by even the beginning cine amateur. Each volume has been carefully illustrated and diagrammed to simplify or improve amateur movie making procedures.

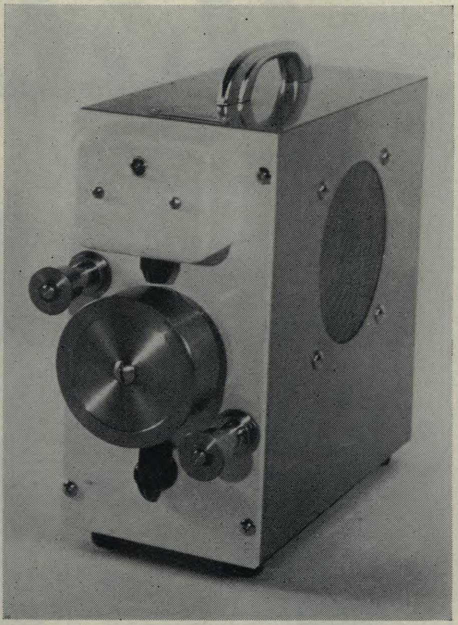
Following are titles of the 12 books which sell for $1.75 each:

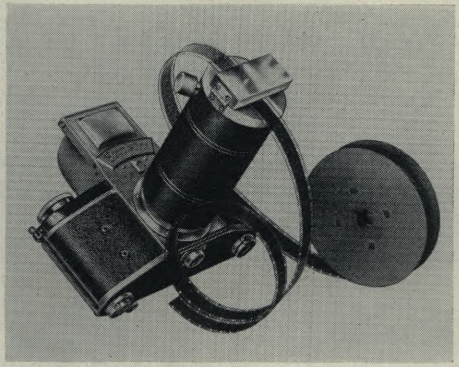
How to Make Home Movies.
How to Direct Your Own Movies.
How to Title Your Own Movies.
How to Make 8mm Movies.
How to Plan a Home Movie Script.
How to do Home Movie Tricks.
How to Make Good Color Movies.
How to Edit Your Own Movies.
How to Make Vacation Movies.
How to Make Movie Cartoons.
How to Act for Home Movies.
How to Add Sound to Your Home Movies.

16mm-35mm Sound Reader

An optical sound reader for 16mm and 35mm films selling for $119.50 is offered by Filmtronics, Inc., 96 Huntington St., New London, Conn.

Specifications and features include 115-v 60 cyc. AC operation; power consumption, 35 watts; uses CE-25 C photocell; 2-watt power output; fused for safety; highly polished drum with needlepoint bearing; narrow width (4″ wide) allows reader to be placed close to most viewers for synch editing.



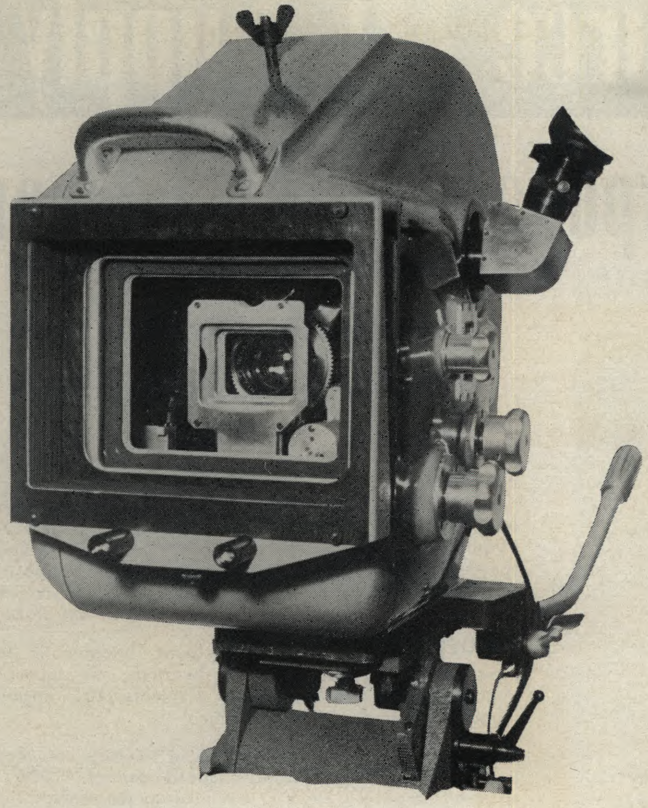


Movie Frame Copier

A precision optical device for copying frames of uncut 16mm color or black-and-white movie film onto 35mm still camera film is announced by Century Photographic Equipment Co., 10427 Burbank Blvd., North Hollywood, Calif. Trade-named the Duplikin, models are available for use with Exakta, Leica, Contax, Pentacon, Practika, and Canon 35mm cameras. List price is $39.50.

Film Processors

An economical, low-priced line of automatic 16mm reversal, negative-positive film processing machines is announced by Milford Film Machine, P.O. Box 343, Milford, Conn. Equipment features daylight operation, quality controls, slip-clutch film drive, and automatic operation. Prices start at $800, F.O.B. factory. Descriptive brochure is available.



CAMERETTE

Now Available with Two Important New Features!

- ★ Adapted for CinemaScope
- ★ Sound Blimp with Reflex Viewing

Now for the first time—a lightweight camera for CinemaScope photography—the 35mm Camerette with CinemaScope aperture, with full CinemaScope field visible through the reflex viewer. Auxiliary turret and matte for regular photography.

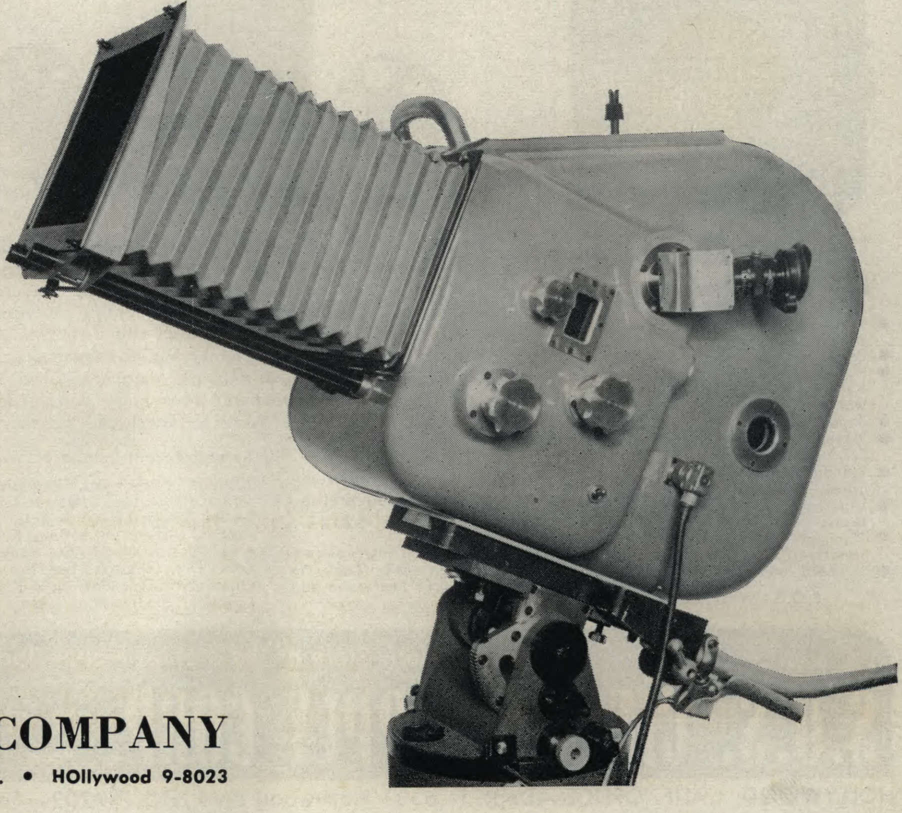
New magnesium alloy blimp with viewing through the taking lens at all times through the Camerette's reflex finder, making a lightweight, fully blimped combination 16mm or 35mm camera. Synchronous motors—110-v single phase, 220-v three phase.

ONLY THE CAMERETTE HAS

1 Ability to use both 16mm and 35mm film in one camera.

2 Reflex viewing through the taking lens at all times for both film sizes.

3 Sound blimp with reflex viewing, making a fully blimped, instantly interchangeable 16mm or 35mm camera.



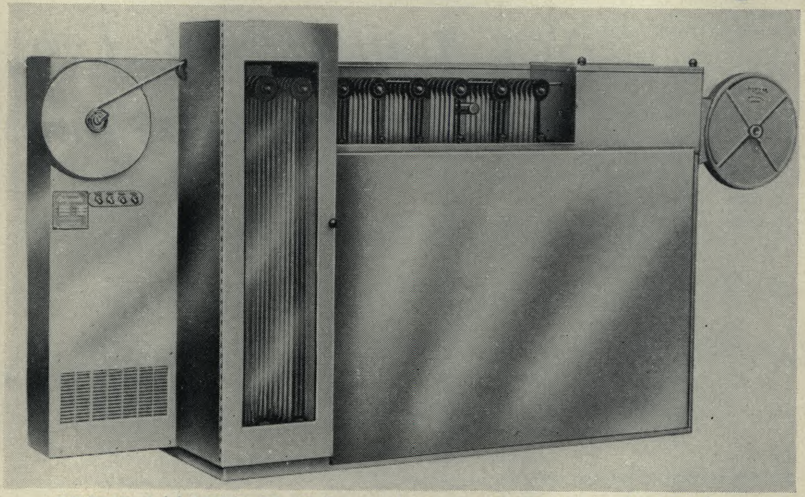
Patents Coutant-Mathot
Manufactured by Eclair, Paris

Write for descriptive literature

BENJAMIN BERG COMPANY
1410 N. VAN NESS AVE. • HOLLYWOOD 28, CALIF. • HOllywood 9-8023

The One-Stop Source Of Supply

The Profitable All-Purpose Film Processor



BRIDGAMATIC JR. 16mm Automatic Reversal Developing Machine—Ideal for TV Stations, Photo Finishers, Industrial or Documentary Producers and Universities.

Bridgamatic JR.

REVERSAL DEVELOPING MACHINE

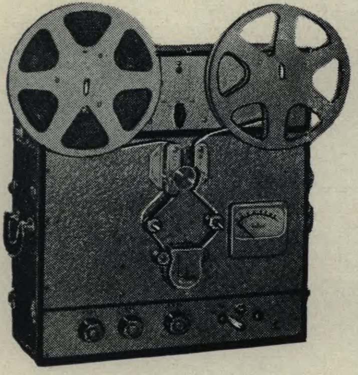
BRIDGAMATIC JR. REVERSAL assures quality pictures in minutes—Spot news and sports events can be shown **immediately** after they occur. This is the perfect All-Purpose Processor at a price anyone can afford. Reversal speed 1000′ per hour—also does negative and positive film. Light-Tight compartment for daylight operation—has 8 stainless steel tanks—completely automatic "Dry-to-Dry."

MODEL R $1995—Includes basic Bridgamatic features such as overdrive, nylon bearings, air squeegee, built-in drybox, blower, heating elements, 400′ enclosed magazine and daylite compartment.

MODEL RA $2495—Same basic features of Model R plus continuously variable speed control, 1200 ft. enclosed magazine, feed-in and take-up elevators.

TAKE ADVANTAGE OF S.O.S. TIME-PAYMENT PLAN
Trade-ins Accepted . . . Send List.

Hallen 16mm Recorders

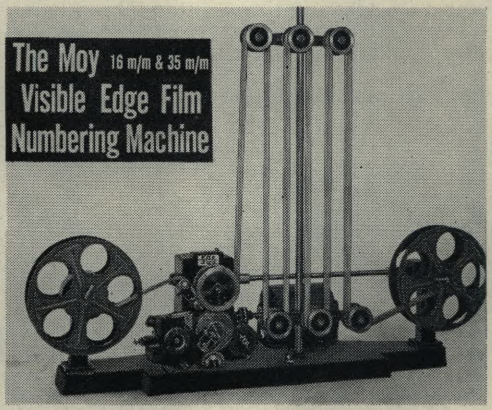


Model 25B—Complete "Lip-Sync" Recording System

- Weighs only 73 lbs., one case, easily portable.
- Professional sound stage quality. simplicity.
- Hallen "Drum System" has Academy Award winning "Davis Flutter suppressor," most stable film motion yet developed.
- Simultaneous monitor of recorded track.
- Three inputs—two for microphones and one for music and background.
- Standard Motion Picture Research Council 16mm track placement.
- High-speed forward and rewind—three separate motors—smooth take-up.
- Removable Monitor Speaker and power supply.
- Licensed under A.T.&T. and W.E. patents.

F.O.B. West Coast $1495

Film Numbering Pays Off



The MOY numbers every foot of 16, 17½, 35mm film—simplifies the task of checking titles, footage. Replaces cue marks, perforations, messy crayons, punches, embossing—does not mutilate valuable film. Work prints showing special effects, fades and dissolves require edge numbering to keep count of frames cut or added. Multiple magnetic tracks in CinemaScope, stereophonic recordings make edge numbering a MUST. Write for brochure.

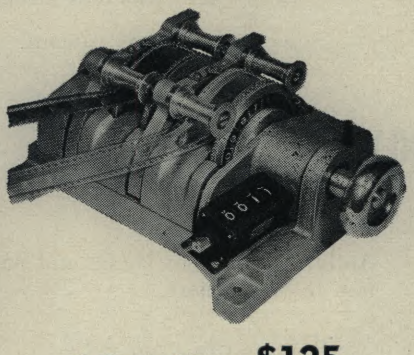
With
New Improved
Non-Clog Inking
System $2475

Present MOY owners can easily install the new and improved inking system!

Among Recent Purchasers Are:

Eastman Kodak Co., Rochester.
General Film Labs., Holly'd, Cal.
Reeves Soundcraft, Sp'dale, Conn.
Holland & Wegman, Buffalo, N.Y.
Amer. Optical (Todd AO), Holly'd
Cons. Film Inds., Ft. Lee, N.J.
Cinerama Productions, New York.
Columbia Broadcasting System.

Hollywood HFC Synchronizers



2 Gang 35mm **$125**

- Sprockets cut to close tolerances.
- Veeder-Root Counters & locking device
- Highest quality precision workmanship
- Built for heavy day-in and day-out use
- Frame dial
- Cast aluminum machined
- Instant Pad Roller Release

Complete line includes standard and special arrangements for 16mm and 35mm magnetic or optical sprocketed fim.

"The Department Store of the Motion Picture Industry"

S.O.S. CINEMA SUPPLY CORP.

602 WEST 52nd ST., NEW YORK 19, N.Y.
Phone: PLaza 7-0440 *Cable:* SOSOUND

S.O.S.
EST. 1926

HOLLYWOOD, CALIF. OFFICE—Dept. F, 6331 Hollywood Blvd., HO 7-9202—*For Other Important S.O.S. Offerings See Pg. 543*

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You might not have noticed it at first glance, but we and this young lady have something in common. We both take great pride in our respective abilities to render

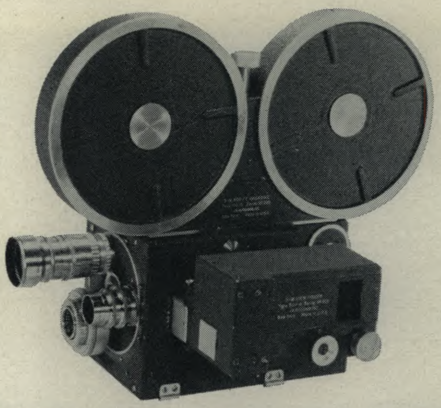
SERVICE.

She—as you can plainly see—peels grapes, and if that's what you want, we recommend her unreservedly.

If, however, you're interested in film processing, this able young lady will be of no use to you at all. For complete 16 mm and 35 mm film services ... magnetic striping any width, any position ... 16 mm color printing, you had better come see us ...

NAIDICH

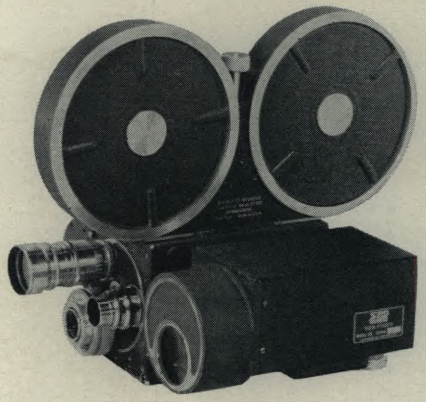
GENERAL FILM LABORATORIES CORP.
1546 No. Argyle/Hollywood 28, Calif./HO 2-6171



A $4500 Value

$2350.00

THE 16MM CAMERA BUILT TO 35MM STANDARDS



A $5300 Value

$2950.00

When the most exacting 35mm professional standards must be achieved in 16mm production, Maurer cameras stand alone as the cinematographer's prime tool. For no other 16mm camera will compare in extreme accuracy of registration and facility of operation.

The Berndt-Maurer camera, with pilot-pin movement for such specialized tasks as animation photography, or the Maurer 05, with "rectangular register" intermittent movement, are both immediately available from Gordon Enterprises.

Like hundreds of other cameras, these Maurer models have been carefully re-manufactured to new standards by skilled technicians in the finest equipped instrument shops in Western America, at Gordon Enterprises. This means that every part, from the smallest to the largest, has been inspected and evaluated by an expert. That is why Gordon Enterprises can say "new-or-better" standards on all equipment it offers. As a prime contractor to the Air Force, the Army and Navy, Gordon Enterprises has repeatedly won commendations for superior performance. Today, motion picture producers throughout the world depend upon Gordon Enterprises for the same superiority in motion picture equipment and for unexcelled service on motion picture equipment.

For these fine Maurer cameras and Maurer accessories, come to Gordon Enterprises. And you'll find hundreds of other cameras, lenses, processing equipment and motion picture production equipment at Gordon Enterprises too, for **Gordon Enterprises has the world's largest inventory of motion picture equipment.**

$2350.00 — Brendt-Maurer — 16mm Professional Camera — Type 506-A — Manufactured by J. A. Maurer, Inc.
$2950.00 — Maurer Model 05 — 16mm Professional Camera — Manufactured by J. A. Maurer, Inc.

Cameras are complete with Viewfinder, 3 lenses, sunshade-filter holder, camera carrying case, accessory carrying case, magazine, and choice of 12 volt or 110 volt motor.

gordon enterprises

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North Hollywood, Calif.

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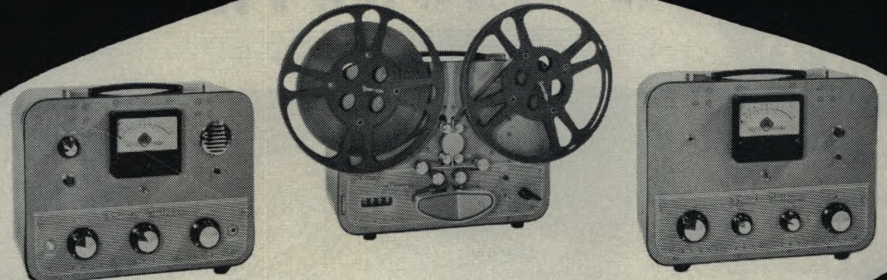

stancil-hoffman S6 system of magnetic film recording light-weight, standard AC or battery operation 16mm or 17.5mm.

we've packaged a major studio

into a portable recording system

STANCIL-HOFFMAN

ECONOMICAL... At last, a low cost, completely integrated, PROFESSIONAL magnetic film recording system for studio, portable, or mobile use... designed to accommodate any camera and meet your every quality and film recording requirement.

VERSATILE... Whatever the power source, camera, or utilization, a simple plug-in or interchange of motors is all that's ever required to operate the S6 system. Designed around 24 volt, precisely engineered, Air Force approved batteries. Accommodate 110 or 220 volts, 1 or 3 phase, 50 or 60 cycle power input.

QUALITY... Engineered by Stancil-Hoffman, manufacturers of equipment used throughout the world by film producers, radio and television stations, the Military, and nuclear research laboratories. Find out how the S6 magnetic film recording system for portable and fixed recording can best meet your requirements... send for specifications now! Credit terms arranged on domestic purchases.

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STANCIL-HOFFMAN CORP.
from microphone to release print

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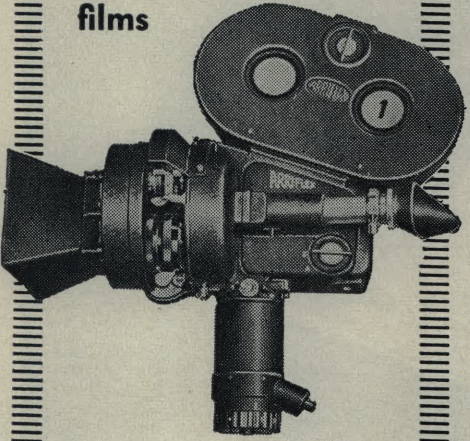
ARRIFLEX

New 35 mm Model 2A
With 180° Shutter

A TRULY GREAT CAMERA

for TV, Newsreel and commercial films



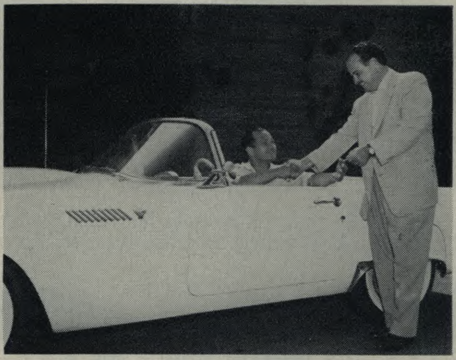
For tough and trying assignments, ARRIFLEX 35 is in a class by itself. Reflex focusing through photographing lens while camera is operating—this is just one outstanding ARRIFLEX feature.

Equipped with bright, right-side-up image finder, 6½ x magnification. Solves all parallax problems. 3 lens turret. Variable speed motor built into handle operates from lightweight battery. Tachometer registering from 0 to 50 frames per second. Compact, lightweight for either tripod or hand-held filming. Takes 200′ or 400′ magazine. Write for free folder.

Blimp now available.
16mm ARRIFLEX also available.

FRANK C. ZUCKER
CAMERA EQUIPMENT CO.
1600 BROADWAY NEW YORK CITY

INDUSTRY NEWS



INNOVATION in public relations is practice established by Magnasync Mfg. Co., North Hollywood, of loaning company's Thunderbird courtesy car to out-of-town clients. Here Magnasync president De J. White hands car keys to William A. P. Smith of Smith System Sound Laboratories, Manila, P. I.

A new optics method announced by Kodak Research Laboratories will provide faster design of better lenses. The first complete analysis of an optical image, a technique that will permit speedier design of better lenses, has been achieved through invention of new mathematical formulas.

The scientific shortcut devised by Kodak's Dr. Max Herzberger is essentially a way of analyzing the optical image and considering it as a superimposition of five simple types of images. He accomplished this by finding five simple types of image errors, from which he can synthesize the most complex optical image.

Until now, lens designers, using computing machines, have laboriously traced rays of light through a lens system during the design stage. This has been reduced to the tracing of only nine rays which, by projection with Herzberger's mathematics, is equivalent to tracing perhaps 1,000 rays.

* * *

Invention of an electronic device to permit accurate scene counting during inspection screening of either 16mm or 35mm film, is announced by Consolidated Film Industries. Method was developed by Ted Hirsch and is being patented by CFI.

During printing, the clear edge side of the film is purposely fogged where scene changes are indicated, causing a thin, black mark to appear at the beginning of each scene. A photo-electric scanner, mounted on the projector for this purpose, scans the clear edge while the print is being screened. As each fogged strip passes the scanner, the accompanying scene-change is recorded in full view on an illuminated counting device located below the screen in the projection room.

Thus CFI technicians and customers can identify every scene by number in order to record on-the-spot suggestions for correcting subsequent re-printing.

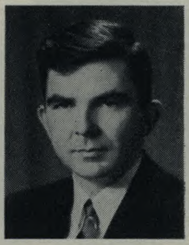
* * *

A unique new 30-minute educational film that shows revolutionary new methods of achieving labor-saving technique in producing animated films, was screened publicly for the first time at the studios of United Productions of America, Burbank, August 24th.

Film was produced by Animation Equipment Corp., New Rochelle, N. Y., manufacturers of Oxberry animation and camera equipment. It demonstrates zooms, pans, dissolves, wipes, pop-ons, cutouts, and multiplane procedures and shows how high-quality animated productions are made in less time and at less cost through use of motorized animation stands and tables.

The film is scheduled to be shown before groups in other film production centers in the U. S. during the coming months.

* * *



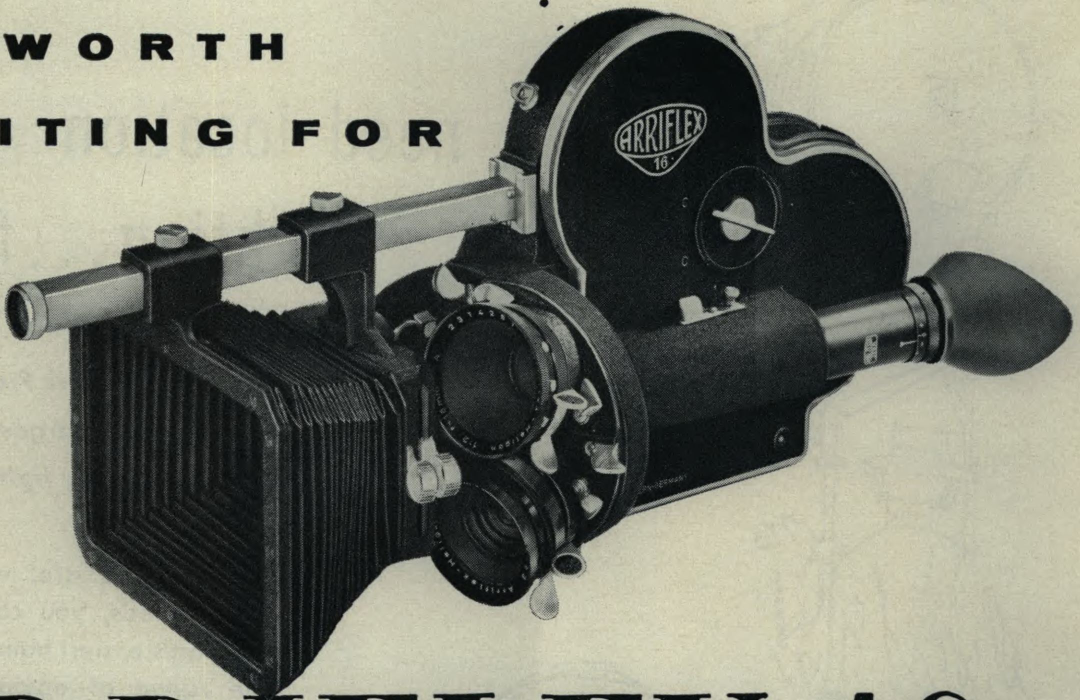
Jim Barker

In his firm's annual report, just released, James Barker, young president of Capital Film Laboratories, Washington, D. C., points out that since World War II the number of 16mm projectors in use has increased ten-fold from about 50,000 to some half a million, and that the number of "general interest" films available in 16mm increased over fifty-fold in just the first seven years after the war ended.

Today, the report adds, the footage of 16mm film exposed for professional use each year runs into the millions of feet, and rivals the film consumption of the theatrical film field.

Capital is one of the leading eastern laboratories servicing the 16mm film industry. It is one of the only three lessees of the Scotchtrack brand magnetic laminate process perfected by the Minnesota Mining & Mfg. Co.

WORTH WAITING FOR



ARRIFLEX 16®

The World's Outstanding 16mm Camera

Because it has so much more to offer, the Arriflex 16 has become the most wanted 16mm camera in the field. The demand has been greater than the supply from the very beginning . . . and for the best reasons in the world:

- The Arriflex 16 is the only 16mm camera with a mirror-reflex shutter for continuous thru-the-lens focusing and viewing—even during actual shooting. There is no beam-splitting and no light loss; no parallax and no need for extra finders.
- It is equipped with registration pin assuring absolute frame registration and rock-steady pictures.
- A built-in electric motor drive permits uninterrupted filming—no need to stop and wind a spring.
- By employing a diverging turret, 3 lenses from extreme wide-angle to 300mm telephoto can be simultaneously mounted—without physical or optical interference.

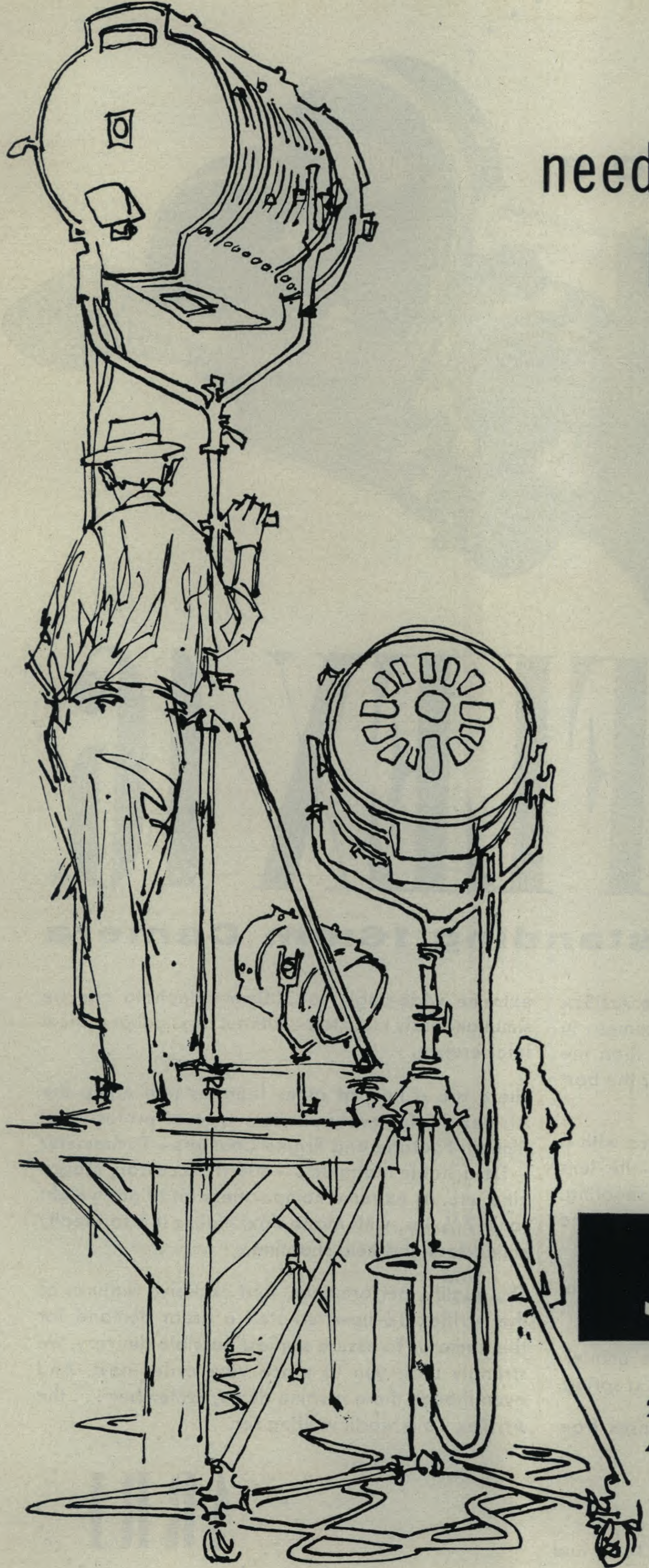
There are a host of other features that equip the Arriflex 16 for every possible type of professional filming: Footage and Frame Counters—Tachometer—Detachable Matte Box—400 ft. Accessory Magazine, etc. Its extreme compactness and light weight (only 7 ½ lbs. with Matte Box) makes it also ideally suited for hand-held shooting.

The quality, performance, and exclusive features of the Arriflex 16 have created a great demand for this camera. To assure earliest possible delivery, we strongly urge you to place your order now. And even though there is some delay, remember . . . the Arriflex 16 is worth waiting for.

ARRI

For complete information concerning Arriflex 16mm and 35mm cameras, and Arri film lab equipment, write to:

KLING PHOTO CORP. • 235 Fourth Ave., New York 3, N. Y. • 7303 Melrose Ave., Los Angeles 46, Calif.



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Wherever you are, whatever your lighting needs, you can depend on Jack Frost's expert handling and complete range of equipment, from a 100 watt inkie to 225 amp arc with mobile power plants. In the studio too, we can supplement your present equipment to meet any situation, anywhere. We've been doing it for years for many of the top shows.

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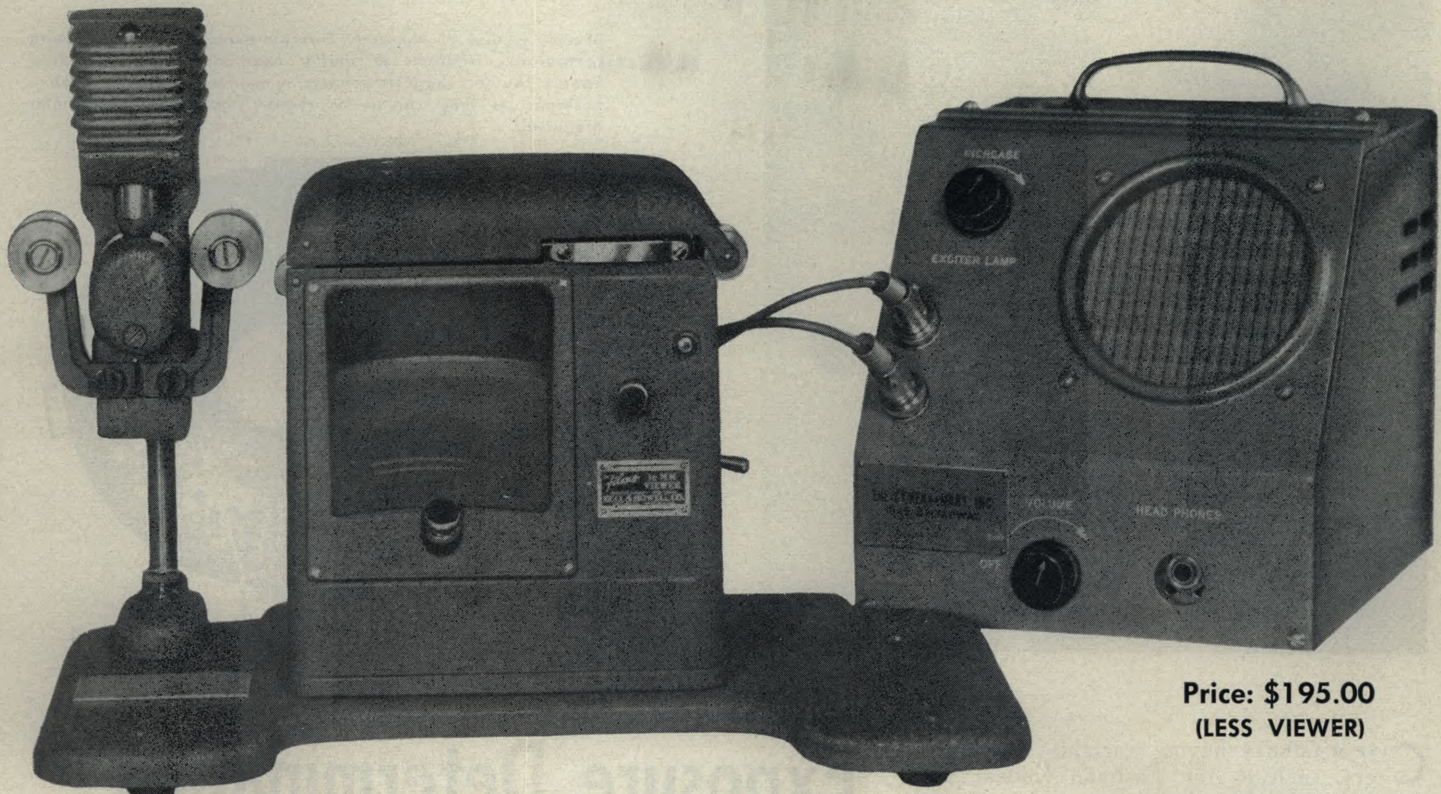
WE PROUDLY PRESENT . . . . another CAMART PRODUCT!

THE DUAL READER

Patent
Pending



Price: $195.00
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THE CINE-SPECIAL camera, shown here in the hands of naturalist-photographer Dr. Olin S. Pettingil, Jr., makes it possible to shoot pictures of fast action at shutter speeds as high as 1/560 second.

BELOW is dial of Norwood Director exposure meter showing comparative positions of shutter openings with cine frames figures. Author suggests readers memorize these comparative positions as they cannot be readily marked on the meter dial itself.

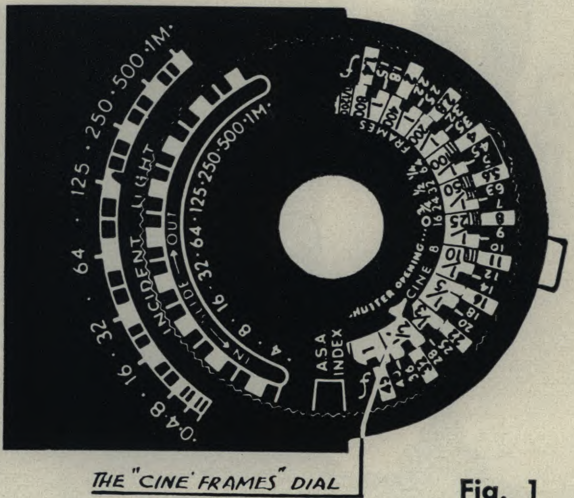

Fig. 1

Exposure Determination For Variable Shutter Speeds

By FRANK P. FRITZ

CINE CAMERAS having variable shutters, such as the Eastman Kodak Cine-Special and Pellegrini-modified 8mm and 16mm Bolexes, offer advantages beyond the ability to make fades and lap-disolves. Such cameras can be used to modify exposures without altering lens aperture for certain photographic effects or results. For example, where you want to pan from bright sun to shade and at the same time maintain full and equal exposure in both areas, the proper exposure can be sustained during the panning operation by changing the variable shutter opening as the camera moves. This method is superior to that of progressively changing lens aperture because with the latter, the depth of field is altered.

This technique poses the problem of determining the correct f/ stop for the different positions of the variable shutter. To understand more clearly the method of using an exposure meter for aperture determination for the variable shutter, it should be remembered that most cinema cameras provide only one shutter speed, although they may offer a range of different *camera* speeds such as 8, 16, 24, and 32 frames per second, etc. Thus, in certain cases, exposure time can be modified by changing the camera speed, but this method is not always desirable.

Briefly, the advantages offered by the variable shutter are:

—Ability to make fades and lap dissolves in the camera.

(Continued on Page 548)

PROBLEM- EXTREME SLOW MOTION - HI-SPEED ACTION AT FASTER SHUTTER SPEEDS•

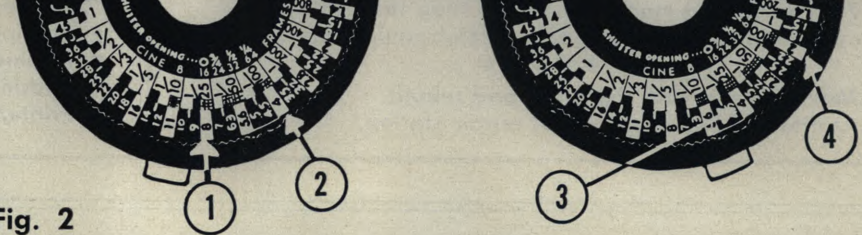

Fig. 2

DIAGRAMS show how meter is used to determine correct shutter opening when photographing fast action at 64 fps. Normal exposure for 64 fps is determined as f/4 (2). Shutter speed dial is rotated to bring the fps figure 16 over the f/4 figure (3). This position on the meter is still 64 fps with variable shutter open. Now, under the 64 fps-¼-open marks is indicated the aperture to use, i.e., f/2 (4).

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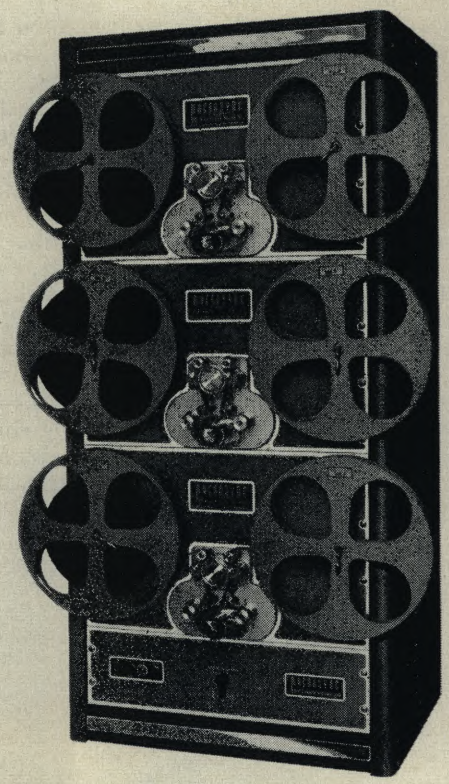

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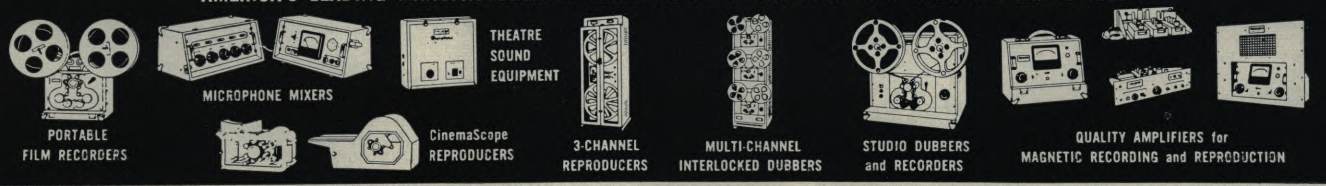
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Make-up Magic For Today's Color Films

Recognizing the varied problems posed by the new color emulsions, American Cinematographer calls upon Hollywood's topmost make-up authority for answers.

By WALTER RAMSEY

"WHEN FACES TURN RED, green or blue in this age of color photography, we must suspect more than high emotions or extreme low temperatures," said Max Factor, Hollywood make-up authority. "Actually, these results come from a combination of make-up, lighting and film used without true color-knowledge and coordination."

How to keep up with make-up and color compensation for the new, ever-changing color films, both 16mm and 35mm, is a problem faced by all those who are interested in the film industry in every way. Here, in an exclusive interview for *American Cinematographer*, Max Factor, Jr., recognized expert in the field of motion picture make-up, gives the answers to these problems in simple, easy-to-understand terms and reveals the correct make-up methods and colors which should be used for the various new color negatives. Nor is the information gleaned by mere chance, but results from Mr. Factor's years of careful research and close cooperation with all leading film companies.

"With the constant development of new color emulsions," continued Factor, "improved make-up colors must be devised which will produce the most natural results. The make-up problems encountered in color motion picture photography are more numerous than in black-and-white photography. Color temperature of light, light intensity and, of course, the developing process itself, directly affect the colors of the make-up."

When selecting colors of make-up, one must be familiar with the particular negative stock being used, as each type of film calls for a different solution to compensate for its unique properties. But it is not necessary to guess or experiment; accompaning this article, you will find several charts furnished by the Max Factor Make-up Studios, indicating the suggested make-up for all types of color film in current use.

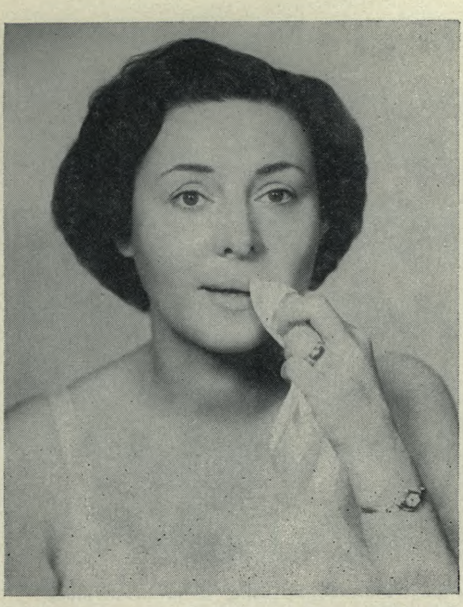
"In Ansco color, Technicolor and Eastman Color No. 5248," Factor continued, "the reds become highly intensified in the developing of the film. Therefore, a true-red lip rouge will reproduce unnaturally and the result will be undesirable. Pastel pinks and pink-orange tones are used, in these cases, for both cheek and lip rouge. These colors will reproduce natural blush tones on the cheeks and natural red on the lips. With Kodachrome film, however, the cheek and lip rouge colors applied will be faithfully reproduced in the final print; so for this film, darker reds are used than for Technicolor, Ansco or Eastman 5248.

"Another important aspect of make-up for color photography today is the reproduction of natural complexion tones on both men and women. Selecting the proper shade for each individual is the secret to obtaining the most natural results. For example, the standard shade of our Pan-Stik for women is 626B for Technicolor film. But should a particular actress have an extremely ruddy complexion, the next shade darker would be more effective; the darker color would conceal the very ruddy tone of the skin and at the same time prevent the skin tone from becoming too light.

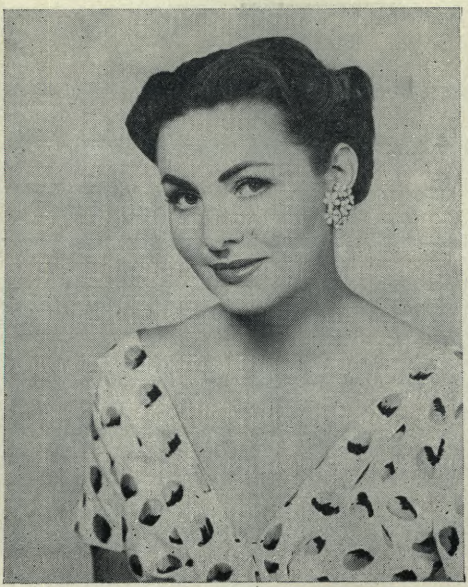
"At this point," Factor went on, "special make-up effects must be considered. A color which is correct for a normal complexion tone would not give the desired effect if, for example, a caucasian were to portray an oriental. A special color should be selected to obtain the desired result; a color that would not incorporate reds, and one that would reflect a minimum of blue. The color blue is mentioned in particular because it is the hue which Eastman Color negative favors. Of course a great deal of color correction is possible in processing, but only to a certain point," Factor warned. "Too much blue in the foundation color results in a muddy complexion tone, and the presence of too much blue will cause the lips to appear a purple color."

The question most asked Max Factor is: What is the difference in the make-up colors now used and the colors used several years ago? His answer is that the major difference is to be found in the new color pigments which have been discovered after months of research in their laboratories. These new color pigments made new methods of refining

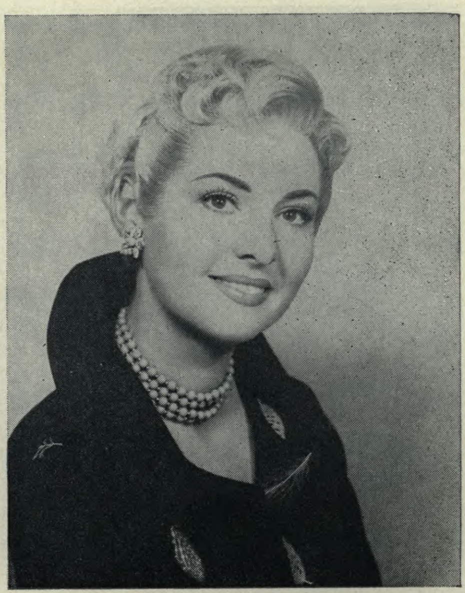
CORRECT METHOD of applying lipstick for motion picture make-up is demonstrated here by Hal King, director of make-up for Max Factor, Hollywood. Model is Lita Baron.



MODEL removing all her make-up. Note how face is without expression, eyes are dull, lips indistinct.



SAME MODEL with properly applied motion picture make-up, resulting in glamorous appearance—and a decided transformation.



SAME MODEL with different make-up and blonde hair—with the make-up properly chosen to harmonize with the latter.

possible. This has resulted in colors with more light-reflective qualities than ever before. The colors today are very clear, very clean, ranging from soft light-amber-pink through the tan tones, with each of the colors having a delicate rosy undertone.

"Consider, too, the color of make-up foundations from the viewpoint of color balance between the man and the woman. If the woman is made up extremely light and the man very dark, on the screen the variance in complexion tones will be so obvious as to be disconcerting to the viewer. Selection of foundation colors which are closer together in depth will give a better balance to the skin tones of the man and woman. The average director of photography is well aware of this, because it is most difficult to light two people with extreme divergence in complexion tones."

TO CREATE a clear, satin-smooth complexion tone, pancake make-up should be applied with a soft sponge.

"What about the technique of make-up application?" we asked Mr. Factor.

"Make-up, incorrectly applied, will destroy the perfect effect you wish to achieve," he said, "even though the proper selection of colors has been made. Never apply foundations so heavily as to completely conceal the texture of the natural skin. A heavy application of foundation will result in a mask-like appearance. High-lights and shadows, used to correct facial proportions, must be blended very delicately so that each color fades naturally into the foundation color. Usually, a color two shades lighter than the foundation is sufficient for a highlight; and for shadows, a color two shades darker. A fine natural sponge or a flat sable brush are better appliances to use for blending purposes than the finger-tips.

"Cheek rouge, as we have said, must be pastel in hue and it must never contain blue. It is always blended to a soft blush tone for current films. Eyebrows should be pencilled with tiny hair-like strokes to simulate the real eyebrow hair. A solid, continuous line should never be used. Perfection in make-up application is the rule to be particularily followed here.

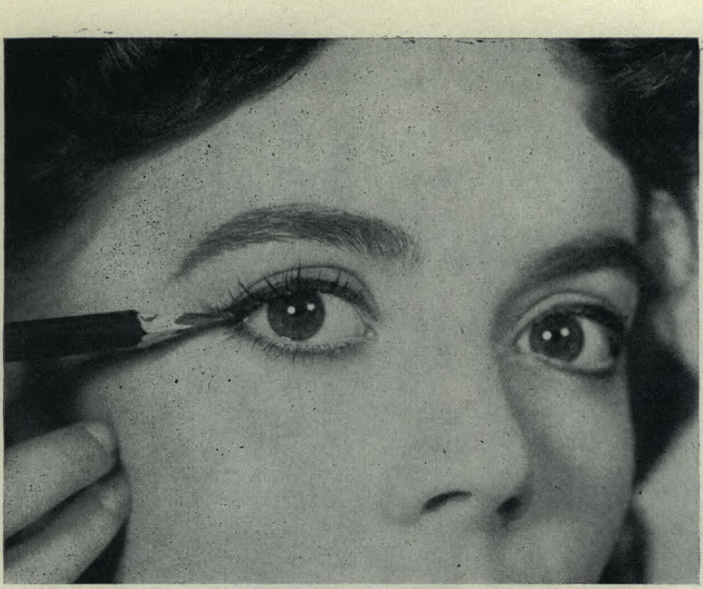
"Because blue is a problem with most color negatives, but especially with Eastman, blue eyeshadow is not used except for cartain special effects. A gray or brown eyeshadow, or a combination of the two, is used today. These colors will give a natural eyeshadow effect. The application must be very delicate, and the edges blended until the color fades away.

"Women's eyes may be made to appear larger by outlining the eye with an eyebrow pencil. The color brown is almost always used and the line is blended to a shadow. The line must be drawn as close to the base of the eyelashes as possible. This will give the desired effect and, too, will serve to prevent the eyes from appearing red-rimmed due to light glare or fatigue.

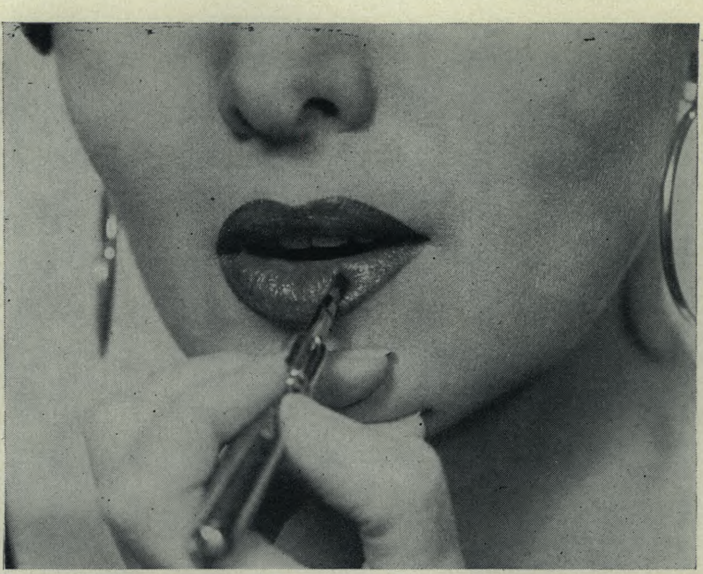
"Eyelash make-up is a *must* for all women appearing before the camera and false lashes may be worn where indicated. These lashes are always trimmed and shaped to give a natural effect.

"Lip rouge is best applied with a lip brush. In this manner a perfectly sharp outline is achieved, giving a clean, shaped lip-line without a feather edge. Lip rouge should be blotted with tissue at least once after applying to the lips,

(Continued on Next Page)



LINE, pencilled on upper and lower lids and blended to almost a shadow, prevents eyes appearing red-rimmed, makes eyes larger.



THE PERFECT lip line is best achieved by using a lip brush made for the purpose. Careful outlining here is important.

for the most natural effect. For a more dramatic effect, we suggest a heavier application of rouge and no blotting for a high stay-on lustre.

"Even the powder used in modern color make-up has changed," Factor continued. "In the past, as you may recall, there was a definite added color to the powder. With current color films, this former color in powder is not only unnecessary, it is taboo. Once the foundation color is carefully selected, it must *remain;* the modern powder is therefore tranluscent, and adds no color to the foundation whatsoever."

Mr. Factor concluded his remarks by emphasizing the usual care required in applying make-up to the neck, shoulders, hands and arms (if exposed) to give a continuity of skin tone. If the hands, for example, are left in their natural coloring while the face, arms, shoulders and neck are made-up, the subject will often appear to have red, blue or even white hands. Continuity of make-up is a paramount consideration.

Costume colors should be carefully considered when choosing the proper lipstick shade. If a woman is wearing a fuschia gown and an orange-colored lip rouge, the color-clash is obvious and far from beautiful. Lipstick does not necessarily have to match the costume, but it should *harmonize,* Factor warned. Often, a red-toned gown is so dark that the same shade of lipstick would be out of line with the film demands as outlined in the charts.

Films are constantly changing and being improved. Make-up especially designed for last year's negative films may not be adequate for the new emulsions discovered in recent months. However,

(Continued on Page 544)

SUGGESTED MAKE-UP CHART FOR EASTMAN COLOR FILM NO. 5248

	WOMEN	MEN
Pan-Cake or Pan-Stik	7-25A or 7-25B or 7-25C	VC-7 or 7-25G or 7-25H
Powder	C3-238 (Translucent)	C-3-238 (Translucent)
Creme Cheek Rouge	Flame or 1B Lip Pomade	----------
Dry Rouge	Flame or Light Tech.	Dark Tech. (Sparingly)
Moist Rouge (Lips)	----------	T-3 (Sparingly)
Lip Pomade (Lips)	7-22	----------
Eyeshadow (Liner)	Brown #3 or Blue-Grey #6	Brown #3
Eyebrow Pencil	Lt. Brown, Brown, Black	Brown or Black
Eyelash Make-Up	Brown, Brownish-Black, Black	Brown (Optional)

VC Series of Pan-Cake and Pan-Stick: VC1, VC2, VC3, VC4, VC5, VC6, VC7, VC7A, VC8, VC8A, VC9A

7-25 Series of Pan-Stick: 7-25, 7-25A, 7-25B, 7-25C, 7-25D, 7-25E, 7-25F, 7-25G, 7-25H

7-25 Series of Pan-Cake: 7-25A, 7-25B, 7-25C, 7-25D, 7-25E, 7-25F, 7-25G, 7-25H

The VC Series of Pan-Stik and Pan-Cake are the original series made for Eastman film. The 7-25 Series of Pan-Stik and Pan-Cake are the latest series and contain Pink undertones. Either series is correct to use. The preference is the individuals.

7-22 Lip Pomade is lighter and more natural appearing than 7-16.

7-16 Lip Pomade reproduces a deeper red tone.

SUGGESTED MAKE-UP CHART FOR ANSCO COLOR

	WOMEN	MEN
Pan-Cake or Pan-Stik Make-up	VC5	VC8
Powder	Tech. Special	Tech. Special
Creme Rouge (Cheeks)	Flame	None
Dry Rouge	Flame or Light Tech.	Dark Tech.
Lip Pomade	1C	----------
Moist Rouge (Lips)	----------	T-3
Eyeshadow (Liner)	Brown #3 or Blue Grey #6	Brown #3
Eyebrow Pencil	Lt. Brown, Brown, Black	Brown, Black
Eyelash Make-Up	Brown, Brownish-Black, Black	Brownish-Black (Optional)

VC Series of Pan-Cake and Pan-Stik: VC1, VC2, VC3, VC4, VC5, VC6, VC7, VC8, VC8A, VC9A

VC1 is the lightest shade. The colors become progressively darker until they reach 9A which is a very deep tan.

Colors lighter or darker than VC5 may be used for lighter or darker skin tone effects, for women.

Colors lighter or darker than VC8 may be used for lighter or darker skin tone effects, for men.

Lip Pomade 7-16 may be used for a pastel lip color effect on the lips of women.

Women whose complexion tones are quite ruddy should wear 626B or 626C Pan-Cake or Pan-Stik, instead of VC5. These colors contain less red pigment.

More neutral skin tones for men who are very ruddy are K1 and K2 Pan-Cake or Pan-Stik.

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Pre-printing Preparation Of 16mm Films

Recommendations aimed at standardizing preparation and marking of negatives and work print for better results offered by the Association of Cinema Laboratories, Inc.

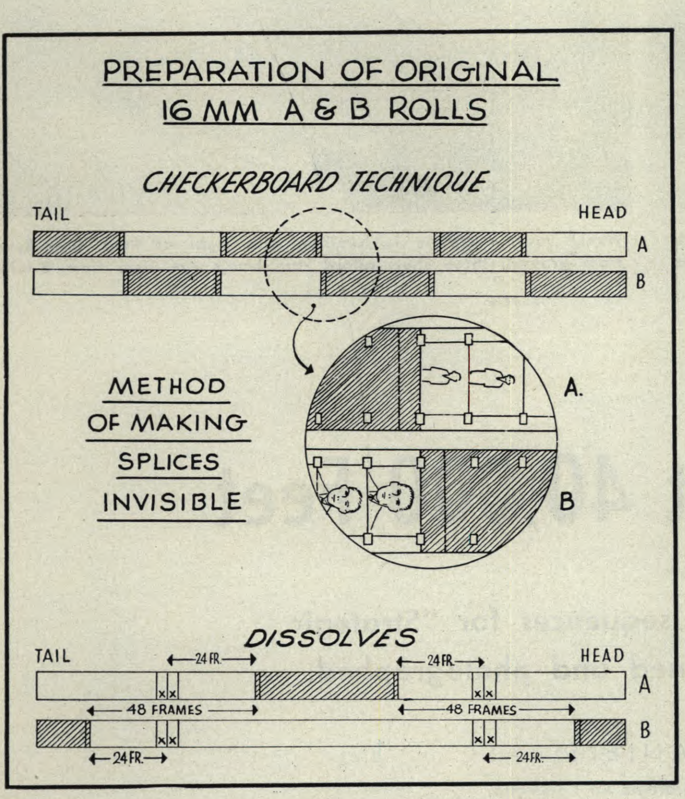


FIG. 1—Top and center diagrams illustrate "checkerboard technique" of making splices invisible when preparing 16mm A & B rolls for the laboratory. Bottom diagram shows the recommended method for preparing A & B rolls for dissolves.

THE ASSOCIATION of Cinema Laboratories, Inc., this month began the distribution of three bulletins containing the Association's recommendations to producers of 16mm motion pictures for the preparation of A & B rolls, the preparation of 16mm printing leaders, and method of marking work prints to indicate effects. It is the first concerted effort by the industry's leading film laboratories to secure the cooperation of film makers towards standardizing their methods on pre-print preparation of films.

In the preparation of original 16mm A & B rolls, there are ten specific recommendations:

Black Leader: It is recommended that only black leader be used between scenes and that such leader be fully opaque. This leader can be made by fully exposing a length of positive film and developing it in a positive bath. If black leader is old, it is advisable to check it for shrinkage. Black leader should be used for *negative* A & B rolls also.

Double or Single Perforated Leaders: It is the Association's recommendation that only double-perforated leader be used when all the original is double-perforated. When some or all of the original is single-perforated, the use of single-perforated black leader is recommended to prevent possible future damage to the original. The perforations in the black leader should, of course, be on the same edge of the film as those in the original.

Invisible Splices: In order to make 16mm splices invisible on the screen, it is recommended that the A & B rolls be prepared using the "checker board" technique. (See Fig. 1). This technique is accomplished by alternating the scenes back and forth on the A & B rolls. The splices should be made in a splicer that makes one of the cuts on the frame line and the other cut in the picture area. When splicing the scene to black leader, the scene should be placed in the splicer in such a manner that the scraped portion and visible cut of the splice occur only in the black leader. After splicing the head of the scene in this manner, in order to correctly make the splice at the "tail" of the scene, it will be necessary to turn the scene around in the splicer.

It is further recommended, however, that the producer consult his laboratory before preparing A & B rolls because some laboratories request that a number of extra frames be left on the head and tail of each scene in matching.

Fades: When a fadeout is followed by a fadein, it is recommended that the fadein scene be carried across to the other roll without any overlap. The procedure is the same as that followed in preparing for "invisible" splices. Instructions must be given so that the fades will be printed in at the desired places.

(Continued on Page 544)

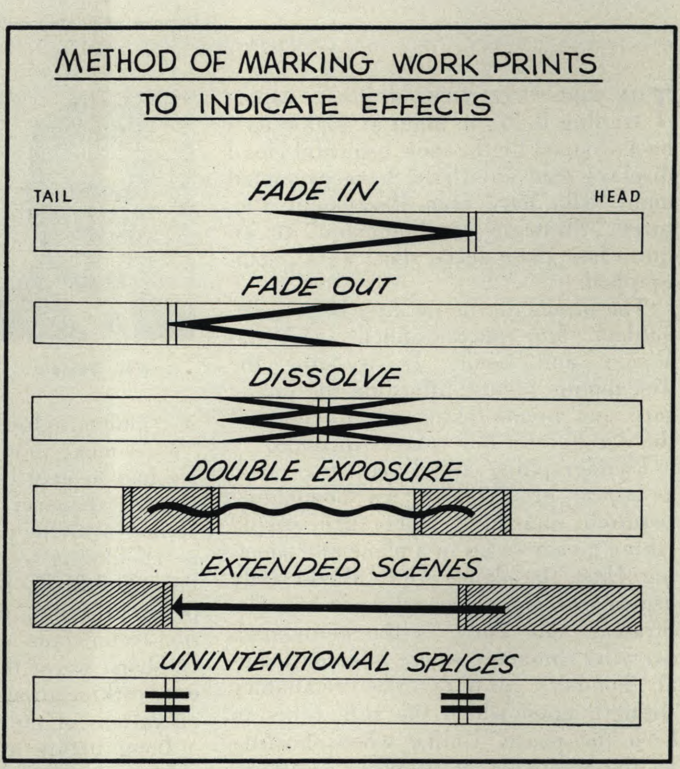
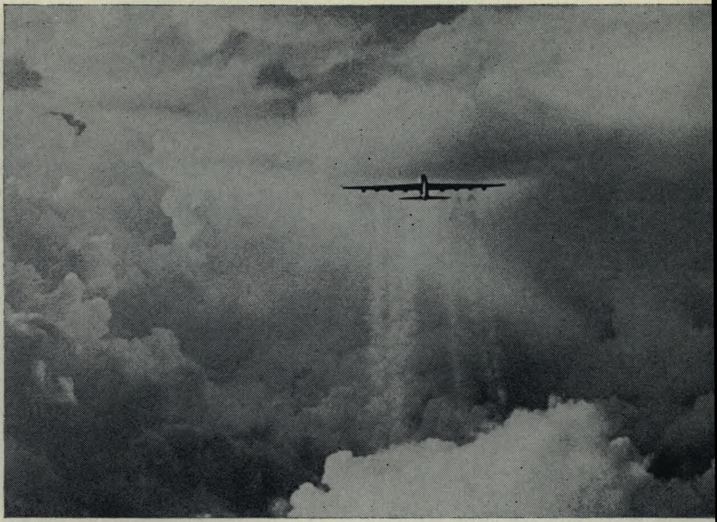


FIG. 2—Method and symbols for marking work prints for guidance of laboratory technicians in making special effects.

COMBINATION of graceful vapor trails of B-36 and vast sea of clouds boiling up from the earth below presented rare sight for cameraman.



WHILE most everyone is familiar with sight of fleet, high-flying B-36s from ground, these shots afford rare bird's eye view from 8-mile height.

Photography At 40,000 Feet

How the spectacular aerial sequences for "Strategic Air Command" were planned and photographed.

By WILLIAM DANIELS, A.S.C.

Director of Photography, "Strategic Air Command"

THE BIRD'S-EYE VIEW of giant, vapor-trailing B-36's in flight at 40,000 feet, backdropped by the most beautiful cloud displays seen anywhere, have prompted many who have seen Paramount Pictures' "Strategic Air Command" to inquire how these aerial shots were photographed.

The production is the first large-scale, outdoor film photographed in VistaVision and color. It is also the first motion picture affording the public rare and breath-taking aerial views of the Air Force's B-36 planes in flight.

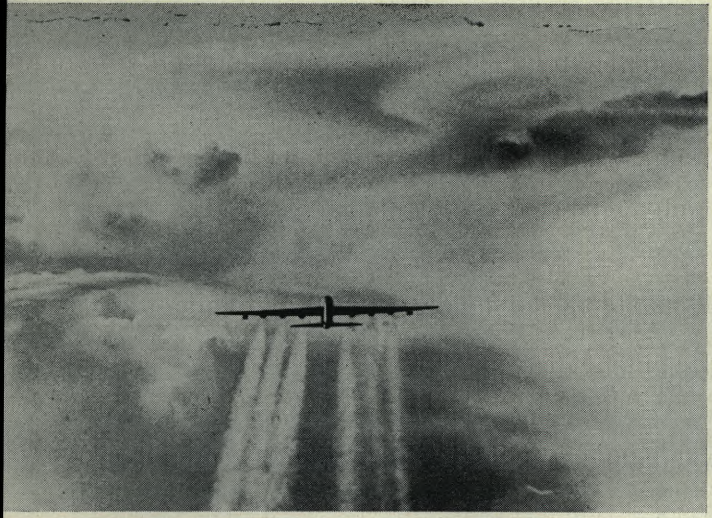
Photographing aerial sequences such as appear in "Strategic Air Command" required something more than simply taking a camera up in a plane and shooting. First, the planes are in almost daily use in training personnel for SAC. The Strategic Air Force is the atom-bomb carrying command whose intercontinental bombers provide the retaliatory strength upon which the U.S. relies to keep the peace. Unlike when shooting on the studio lot or on other locations, it wasn't simply a matter of checking the weather of a morning and—finding it photographically ideal—deciding: "We'll make those air shots today." No, we had to give the Air Force 24 hours notice whenever we wished to shoot scenes involving planes. And before each aerial filming session was begun, a four-hour pre-flight briefing of Air Force personnel taking part and of our production technicians was standard procedure. In short, we of the studio had to adjust our working procedure in harmony with operations of the SAC.

Wm. Daniels

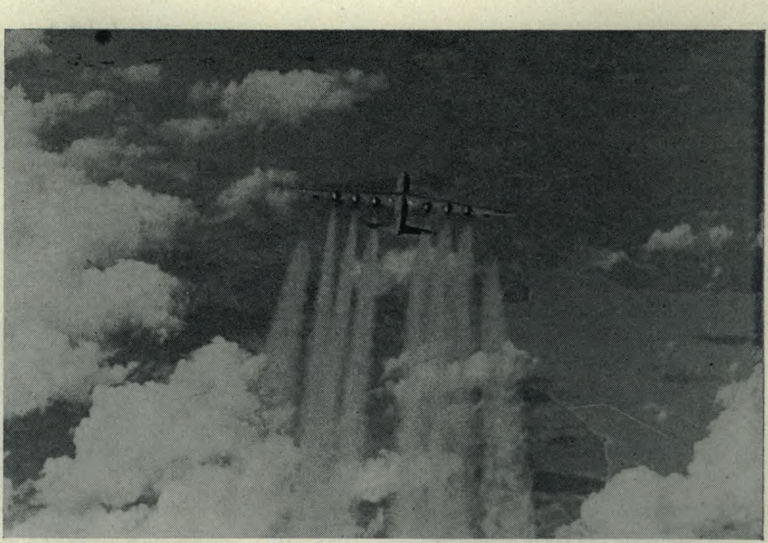
Tom Tutwiler

Long before a camera turned—even before cinematographer Tom Tutwiler, A.S.C., knew he had been elected to do the aerial photography of this picture—Director Anthony Mann, Art Director Earl Hedrick, Production Manager Curtis Mick, and I journeyed to MacDill Air Force Base in Florida, to Carswell AFB, Ft. Worth, Texas, and to March AFB near Riverside, California. At each location we discussed the script action for the aerial sequences with SAC and AF officers and made a survey of the planes that were to be made available to us for much of the aerial photography.

Never before had studio cameras been used in these planes for photography of any kind. It was very important therefore to make use of the opportunity to plan the camera locations—the positions in the planes where the cameras were to be mounted— and more important, to plan the special camera mounts that would be required. In the B-36 we needed an opening (window or port) through which to shoot at a downward angle while the plane is in flight. The bombsight port protected by heavy optical glass proved a natural for this; a great deal of Tom Tutwiler's spectacular aerial shots were made with the VistaVision camera mounted in this position.



JUST kissing the cloud tops is this SAC B-36 laying down its vapor trails at an altitude of over 40,000 feet.



TOM TUTWILER, ASC, shooting from another B-36 with a VistaVision camera, captured these rare shots for "Strategic Air Command."

To shoot from this type plane alone, I had to design four different camera mounts: for the B-36 nose, the forward "bubble" or gun port, and two for the aft gun ports.

On our return to the studio from the survey of the Air Force bases, detailed specifications for building the various camera mounts were turned over to the studio's camera department. In the meantime, we had arranged with Paul Mantz to supply his famed B-25 camera plane for our use in making some of the aerial shots.

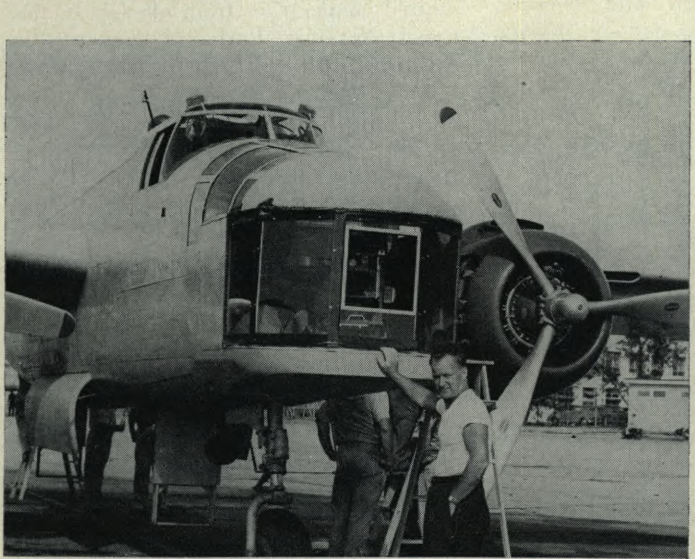
This assignment marked the first time that the Mantz camera plane had ever been used for VistaVision photography. It was therefore necessary to completely alter the camera mounts in both the nose and the tail to accommodate the VistaVision cameras. Mantz's ship was used in filming all aerial shots that did not require going to extreme altitudes. When it was necessary to shoot from heights of around eight miles and travel at near sonic speeds, one of the Air Force's jet aircraft was used as a camera plane. It was such a plane that Tom Tutwiler used in shooting the rare, unearthly panoramic shots at 40,000 feet that highlight the climax of the picture.

Altogether, the aircraft used in the action or the photography of "Strategic Air Command" included the aforementioned B-36s, the Mantz B-25 camera plane, B-47 bombers, H-19 helicopters, KC-97 in-air refueling ships, T-33 jets, C-97s and C-124 Globemasters. The helicopter was also used as a camera plane for special shots.

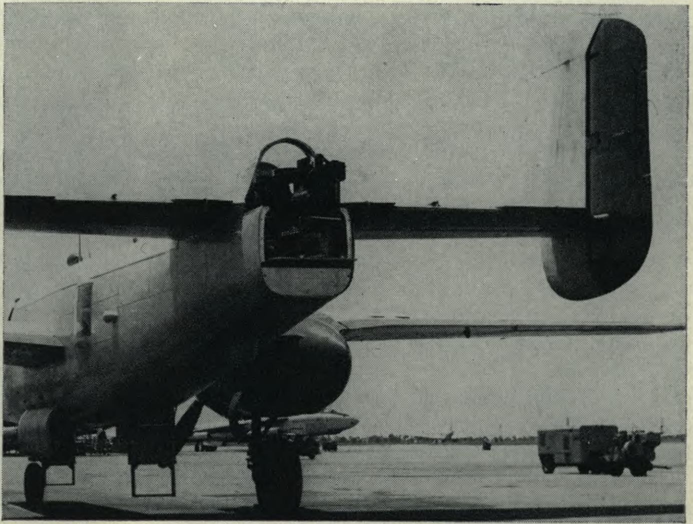
This cooperation and permission to shoot SAC in actual operation was extended us by the Air Force because it was felt the film could be a definite contribution to national security. Furthermore, the special type of mature individual SAC requires for personnel is not easy to find. The film illustrates the type of temperament a man must possess to be eligible for duty in SAC.

Col. O. F. Lassiter, one of the nation's most renowned pilots, was given leave from his duty as Director of Operations, 12th Air Division, March Field, to act as technical advisor and liaison officer with

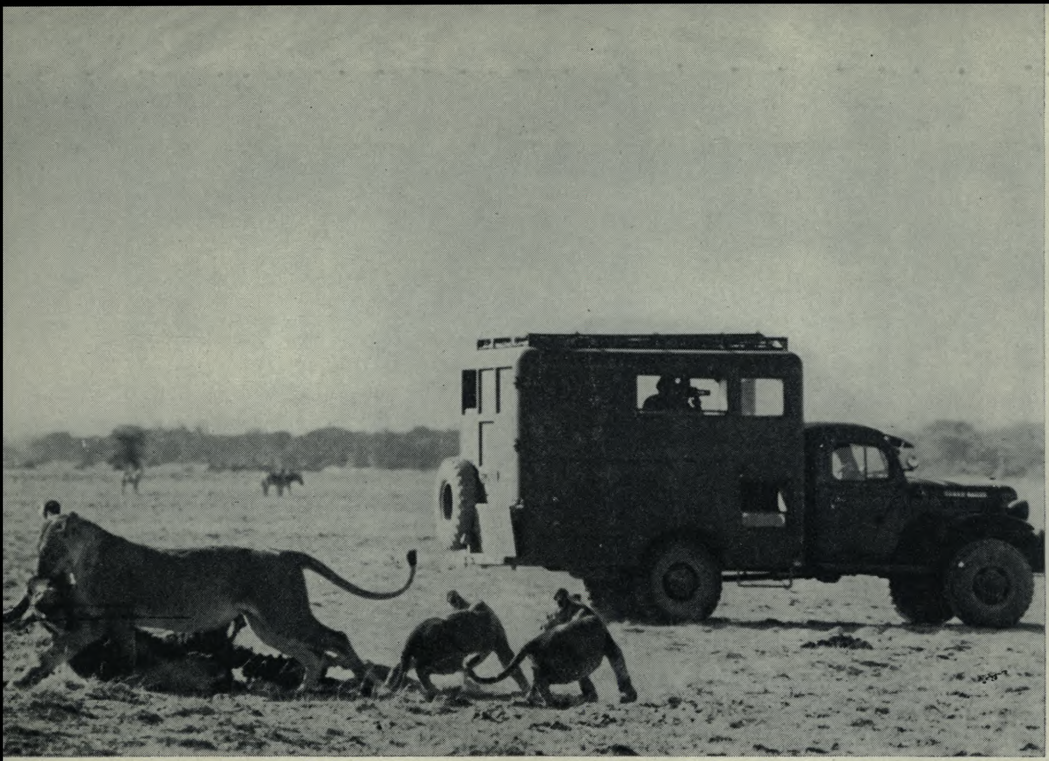
(Continued on Page 547)



PAUL MANTZ's famed camera plane was used by cameraman Tutwiler to shoot a great many scenes for "Strategic Air Command." Photo shows nose mounting VistaVision cameras.



TAIL OF SAME plane, showing canopy removed from the aft camera position. It was necessary to modify the camera mounts in both nose and tail in order to accommodate VistaVision cameras.



ALFRED MILOTTE, in the special armored 4-wheel-drive camera car, photographs a mother lion bringing home the entre for her cubs' dinner. Elma Milotte, in a Jeep some distance away, made this shot with a telephoto lens. In background is famed Mt. Kilimanjaro.

Filming "The African Lion"

Alfred and Elma Milotte's three-year camera safari for Walt Disney's latest True-Life Adventure feature carried them for more than 50,000 miles through the primitive lands of Kenya, Tanganyika and Uganda.

To bring the first full accurate life story of the King and Queen of Beasts out of the African wilderness for movie audiences, Alfred and Elma Milotte, famous team of 16mm cinematographers, literally consorted with lions for many months in photographing Walt Disney's newest True-life Adventure feature, "The African Lion."

In their 32-month camera safari for the Disney assignment the Milottes lived as closely amongst groups of lions as they ever have with human neighbors. In that time, traveling in a truck which was both home, laboratory and camera car, they traversed the vast Serengeti plain and contiguous animal territory from Mt. Kenya to the lofty, storied Mt. Kilimanjaro.

Here they photographed the greatest pageant of wildlife anywhere on earth, uncountable in numbers, on over 100,000 feet of 16mm Kodachrome film, including in the lion's domain elephant, rhino, giraffe, leopard and cheetah, zebra and wildebeest, baboon, hyena, jackal and wild dog packs, scores of antelope and gazelle species and birds of many feather.

The real preparation for the safari began with the construction by Disney engineers of the mobile carrier which was to transport the Milottes and their equipment into and through the rugged African interior, and which was to serve as a combination home, transport, and mobile camera car. On the chassis of a new 4-wheel-drive truck, a sturdy, steel-sheathed cabin was erected. This provided two pullman bunks; lockers for clothing, cameras and camera equipment; and a collapsible steel parallel or tower on top for use in gaining higher vantage point for the cameras. Heavy optical glass protected the windows and camera ports of the cab.

The Milotte's motion picture equipment consisted of a 16mm Arriflex camera, two Cine Specials, and a Filmo Special equipped with a detachable 400-foot film magazine. The wide array of camera lenses ranged from wide-angle up to 16-inch telephotos. Three exposure meters insured them against the contingencies of loss or unexepected damage that invariable occur when only a single meter is carried.

While a substantial quantity of 16mm Kodachrome film—both Commercial and Regular—was taken along, the stock was replenished at intervals by shipments from Disney headquarters, which the Milottes picked up at Nairobi, base of operations. At the same time, exposed film was shipped via air-mail to Hollywood for processing. The processed film was then sent to Disney studios. Not a foot of it was seen by the Milottes until they returned to Hollywood some thirty months later.

Actually, there would be no advantage for the Milottes in seeing what might be termed "dailies" or "rushes." For if a shot was marred by poor exposure or focus or framing, which it rarely was, there would be nothing they could do about it anyway; it couldn't be restaged and shot. So the policy was to shoot on the basis of long experience in photographing wild life, to photograph enough of it and thereby provide more than enough footage for the production as planned.

We use the term "planned" loosely here, for actually there was no shooting script; no list of subject material supplied to the Milottes. When they set out on the vast African plain, they were on their own to shoot what they could, when and wherever they could find it—based, of course, on a knowledge gained through many years experience in wild life photography and a study of books on Africa and its denizens of the bush. In addition, the Milottes received unlimited cooperation from officials of the Royal National Parks of Kenya, the Serengeti National Park of Tanganyika, Queen Elizabeth National Park of Uganda, Kruger National Park of South Africa, and the Game Departments of Kenya, Uganda and Tangayika.

During their twenty years of wildlife photography, from arctic to equator in many lands, Alfred and Elma Milotte have learned how to behave and how to command respect in the presence of wild creatures. After proving they meant no harm, the human intruders were accepted as just another kind of animal. Their steel-clad camera truck became a familiar feature of the landscape. As long as the Milottes kept their tolerated distance, the lion families went on about their business of life and death in the melee of survival passions to which they were born.

Making their camera setups confi-

WILD ANIMAL view of the Milottes—Al behind the Arriflex 16 and Elma ready with her reflex 35mm still camera. The big telephoto lenses seen here were used in making the majority of shots from the camera car, which also served as home for filmers.

dently, yet cautiously, often within less than 100 yards of a subject in action—outside as well as inside their truck—they filmed the whole gamut of leonine behavior through courtship, hunt and kill, family affections, maternal discipline and the jealous outbursts in the harem of half a dozen or more females.

Much of the success of the Milottes' photography is based on a routine procedure which they invariably follow in entering a new region. Before ever thinking of readying their cameras for shooting, they first spend a period of time exploring the region and studying it—its accessibility, the light conditions, the pictorial values of certain features of the terrain, etc. Here, as in no other place, they found excessive heat one of their chief problems. The great heat waves resulting from the intense mid-day sun so distorted distant images that photography in mid-day was impractical. For this reason, most of their shooting occurred during early morning and late afternoon.

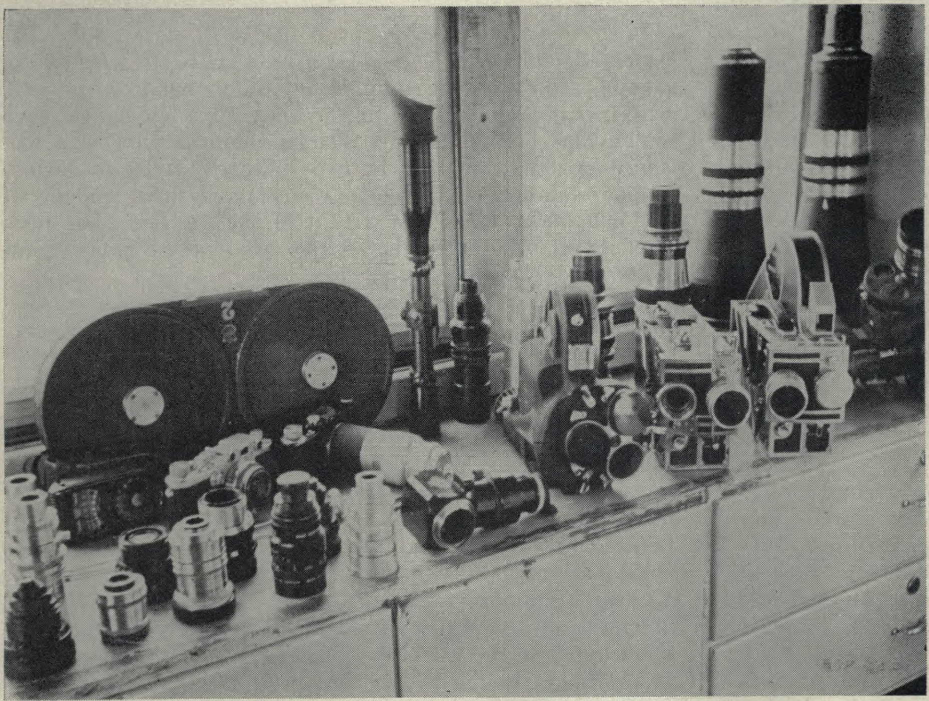
The pre-shooting surveys of the Milottes included careful observation of the animals they planned to film—their eating habits, migration patterns and indicies of mating seasons. Here the Parks officials were of inestimable help in providing valuable information.

Much of the success of their wildlife photography is based on the fact both Al and Elma have studied wildlife habits extensively, and when on a filming assignment they automatically think like the wild creatures on which they train their cameras. For example, while on the Serengeti plains, they were watching a group of lions and planning their next sequence of shots. Al observed one lioness suddenly stretch, yawn and get to her feet. "She's going over to the water hole!" he told his wife. They started the truck and sped to the waterhole. Within minutes, the lioness put in an appearance, just as Al had predicted. By now,

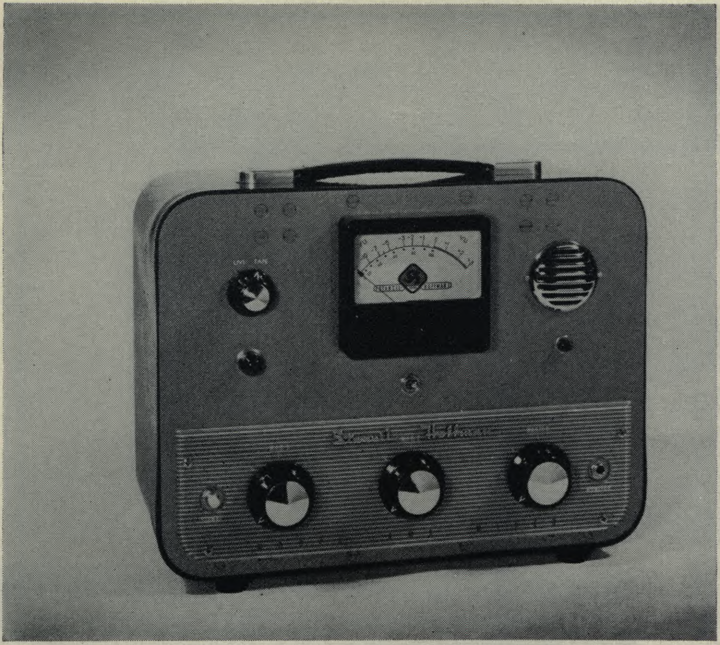
(Continued on Page 542)

LIONS give the Milotte camera car careful inspection, affording Al at camera at left opportunity to get some interesting closeups of lions in action on the Serengeti plains of east central Africa.

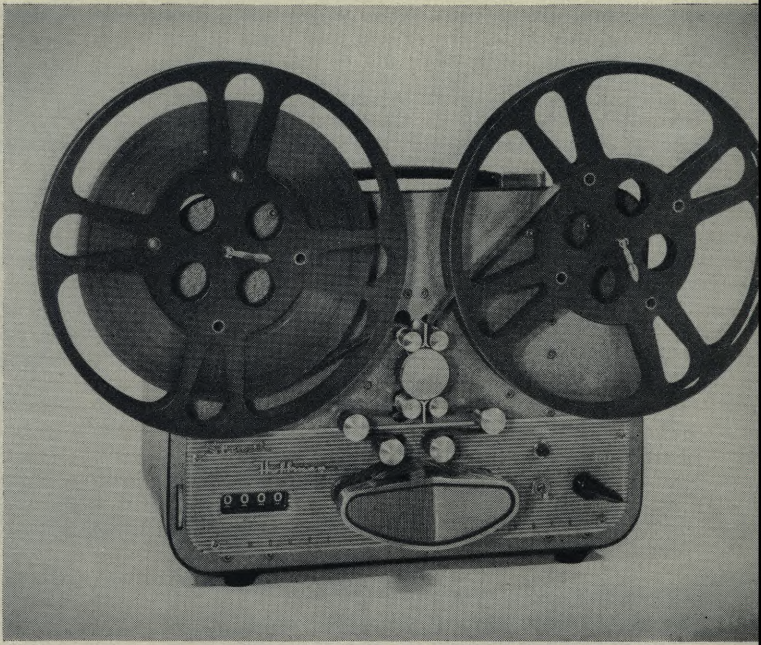
All photos copyrighted by Walt Disney Productions.



THIS BATTERY of movie and still cameras, lenses, film magazines and exposure meters is the photographic gear used by Alfred and Elma Milotte on their African safari for the Disney True-Life Adventure feature, "The African Lion."



THE THREE units pictured above comprise the new Stancil-Hoffman S6 portable magnetic film recording system. Above is remote microphone preamplifier with push-button announce microphone for scene number identification, plus many other unique features.



FILM TRANSPORT of the S6 system. Recording and playback heads are located beneath decorative cover in center. Dual-flywheels insure balanced mechanical filter system for velvet-smooth film travel. Footage counter with reset knob is at bottom left.

Innovations Highlight New S6 Magnetic Recorder

Stancil-Hoffman Corp. has packaged the complete facilities of a major studio sound recording system in a lightweight, portable, 3-unit magnetic film recorder.

By FREDERICK FOSTER

THREE, PORTABLE, easy-to-carry pieces of equipment comprise the new model S6 Stancil-Hoffman professional magnetic film recording system. The three-unit package has been especially designed for three-way use—for studio, portable or mobile recording. Whatever the power source, camera, or utilization, a simple plug-in or interchange of motors is all that is ever required to operate the S6 recorder. Designed around 24-volt, precisely engineered, Air Force-designed batteries, the system also operates on 110 or 220 volts, single or three-phase 50 or 60 cycle power input.

The immediate and obvious requirements as to size and weight have been successfully met without any compromise in performance. Particular care has been taken in the design and fabrication of the large cross-sectional castings and the bearing suspension along with the weight distribution of the mechanical members.

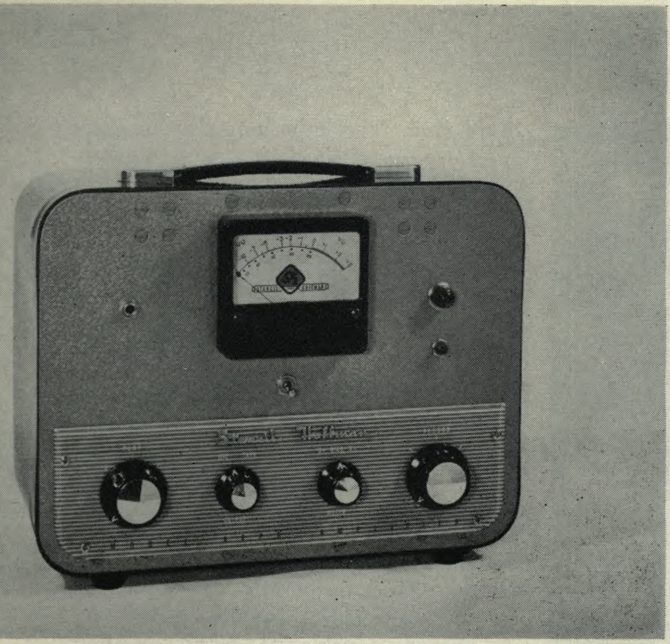
The aim for high efficiency and low power consumption is seen in the design which uses batteries for power. This was accomplished by designing the amplifiers for D.C. operation. Every moving component of the recorder is mounted on precision ball-bearings, carefully aligned and assembled. Many of the frills are eliminated to conserve both power and maintenance time.

The S6 uses a single motor drive, which operates a worm gear reduction for the main sprocket drive as well as the take-up clutch. By carefully lapping a metal worm gear working in conjunction with a nylon gear, a low-flutter drive system has been obtained. The mechanical filter is a balanced system consisting of two flywheels and two spring-loaded stabilizer arms using a silicone dashpot on one of the members. While the weight of the flywheels has been kept to a minimum, the system presents extremely low flutter in the order of .15% to .2%.

For simplicity in threading, a single sprocket is used plus an automatic control to open and close the "keepers" and establish the film tight loop.

To meet all of today's demands in magnetic recording, the S6 is available for either 17.5mm or 16mm perforated film. The 16mm transport system operates at the conventional 36-feet per minute speed. In the 17.5mm recorder, advantage has been taken of the new trend toward use of 45 f.p.m. speed—one-half that of standard 35mm film. As both the frequency and motion exceed present standards, considerable savings in raw stock costs result through this halving of film travel speed.

One of the great problems with portable recording equipment has been the various voltages and currents encountered in the field. In the S6 this has been readily solved by the


RECORD AND playback electronic unit. Facilities are available for gain control of the record amplifier and playback amplifier, a live tape switch and a master switch to furnish volume indication, bias setting, and B+ voltage.

provision of facilities for quick change of both the gear box and the motor. It is possible to carry a 110-volt single-phase motor and a 220-volt 3-phase motor, along with a 50 cycle and a 60 cycle gear box, and to change from one complete system to the other without tools.

Basically, the specifications of the S6 are as follows: Frequency response—flat from 50 cycles to at least 12,000 cycles in both film speeds. The signal-to-noise is in excess of 55 db with less than 2% total harmonic distortion through the entire system. The transport system in the case weighs less than 24 pounds and the electronic section, less than 18 pounds. A 1000-foot film capacity is provided although obviously smaller amounts of film may be handled where desired. Either reels or open-flange type film holders may be used.

Perhaps the most outstanding feature of the Stancil-Hoffman S6 recording system is its flexibility and versatility. It is available as a one-, two-, or three-unit system for a wide variety of applications and uses. The three-unit system is virtually a major studio unit compressed into three light-weight components, easy to carry and to use, and provides for use of two microphones. The two-unit package is for use with single microphone. The one-unit is also a single microphone model and provides automatic volume control, making it ideal for such applications as newsreel, documentary and remote sound effects recording.

Any one of the three systems can be readily changed to operate as a one-, two-, or three-unit recording system, where the three components are available. Where the ideal sound recording channel uses a remote microphone preamplifier, permitting the mixer to operate at the scene of the action, many times this facility becomes a burden and unnecessary

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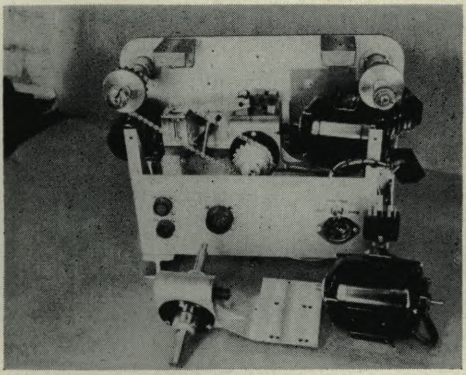
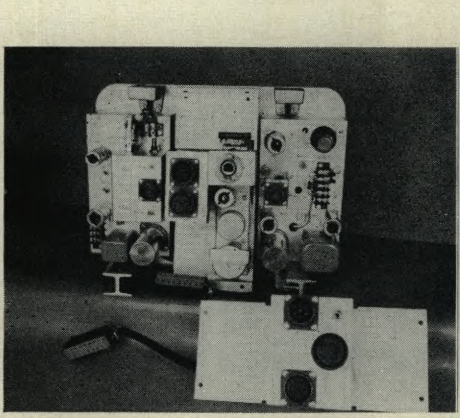
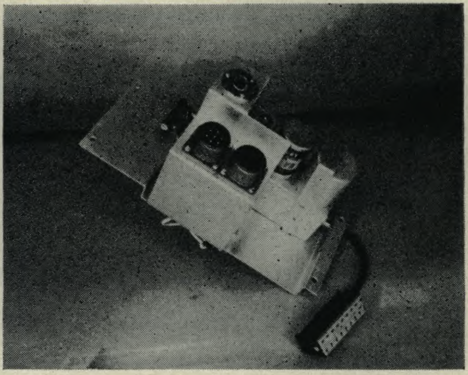
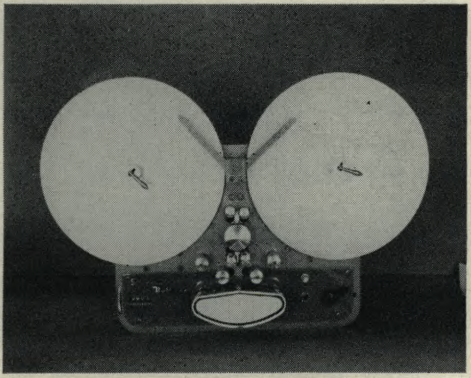
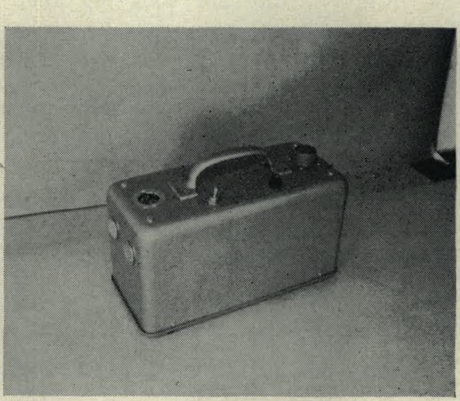
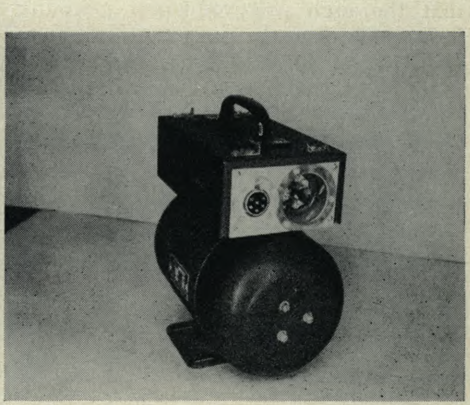

REAR VIEW of S6 transport unit showing the replaceable gear box and replaceable motor for either 50 tor 60 cyc. 110-120 AC.


REAR VIEW of recording and playback amplifier sections. Removable panels provide for plug-in mike preamp or remote amplifier.


THE REPLACEABLE center section of the ARP6 amplifier system which contains the plug-in microphone preamplifier mentioned at left.


MODEL S6 transport unit with the open flanges and film guiding members affording fast loading and unloading of film.


POWER SUPPLY pack for the Model S6 is available in two models for 24-volt DC operation and for 110-volt single-phase power.


ROTARY CONVERTER which furnishes 230 volts 3-phase current from 24-volt batteries for powering heavy-duty 35mm equipment.

HARRY RUFFNER shoots a scene for his prize-winning film, "In The Heart of a Man," while his wife, Lee, acting as script girl, keeps a log on exposures. The two work together on all phases of their amateur film productions. Eric Osenda (right) is star of the picture. Camera is a Cine-Special mounted on a Kodak tripod.

Filming A Prize-winner

Cine Club film makers find that pre-production planning pays off handsomely in contest awards.

By CLIFFORD V. HARRINGTON

HARRY AND LEE RUFFNER of San Francisco, California, are a man-and-wife camera team that firmly believes that thorough pre-production planning is a necessity to the success of any amateur motion picture. Their most recent film, "In the Heart of a Man," is convincing proof of this theory. It was selected along with five other pictures to share equally the top honors in the annual contest of the Northern California Council of Amateur Movie Clubs.

The seventeen minute, 16mm color film with magnetic sound began as an idea nearly ten months before the Ruffners won their trophy.

"I always wanted to make a film about a hobo," Harry Ruffner said. "I wanted to depict a man, who for reasons known only to himself, has chosen to become a wanderer. In spite of the situations in which he finds himself, he still retains his dignity and self-respect."

After developing their basic theme, the Ruffners did not pick up their camera and rush into production. Instead, they began by putting their ideas on paper and working the kinks out of their brainchild. They spent two weeks developing the plot of their story and two months of spare time preparing a detailed shooting script.

The Ruffners' story traces the actions of a hobo who finds a wallet containing money. The wanderer visualizes the fine clothes he might purchase with the funds, but decides to return the wallet to its owner. The owner, a woman, rewards him with a five-dollar bill. Deciding that his immediate need is a new pair of shoes, the hobo searches for a shoe store. On the way he passes a blind man. The hobo longingly inspects several pairs of shoes in a store window, but after careful thought he comes to the conclusion that he can do without new footwear a while longer. He gives the money to the blind man and continues on his way.

To play the main character of the hobo, they selected a friend, Eric Osenda of Sunnyvale, California. Osenda at first was sketpical of his ability to play the part. But after the demands that were to be made of him as an actor were explained, he changed his mind and entered enthusiastically into the project.

"When we write a script, we always keep in mind the persons who are going to play in the film," Ruffner said. "We try to incorporate as many of their characteristics and mannerisms as possible into the parts we are attempting to create. In this way we have a better chance of obtaining creditable performances, because, in a manner of speaking, they are playing themselves."

Osenda's wife, Evelyn, and his daughter, Loretta, were also given parts in the film. And before the shooting began the family's dog, Smokey, was included in the cast.

The Ruffners' pre-production planning did not end with writing a script and casting the parts. They spent three days searching the Santa Clara valley, nearly 50 miles below San Francisco, for locations. Before they began shooting, they made a three-minute test film of the lighting they planned to use in the interior shots.

The picture was begun in early spring and was planned so that the group could

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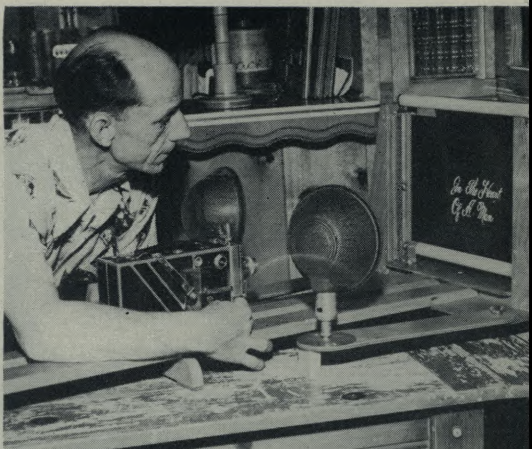

HARRY RUFFNER shoots main title for his prize-winning film on home-made titler that looks like a prize-winner also. Ruffner and wife are members of Westwood Camera Club, San Francisco.

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WHERE plane used for filming is equipped with intercom system, directions can be given pilot by the photographer during flight. Otherwise, series of hand signals, worked out beforehand, can be used to convey instructions to pilot.

WHEN shooting from a helicopter with door cabin removed, wear safety belt provided for purpose. Vibration of craft makes it necessary to shoot cine cameras hand-held—never mounted or attached to helicopter structure.

Shooting Movies From The Air

Advice for the cine amateur on how to shoot motion pictures from aircraft; also exposure determination procedure and filter data.

By DEAN RIGGINS

U.S. Army Signal Corps, Ft. Monmouth, New Jersey

YOU MAY SOMEDAY have opportunity to shoot motion pictures from the air, and if you do, the following information may prove useful. It is the essential information contained in the instructions this writer has given on occasions as Instructor of Newsreel and Combat Motion Picture Photography, United States Army Signal Corps Photographic School.

Since aerial scenes are generally of a nature not easily repeated, it is well to have sufficient foreknowledge of aerial filming techniques to guarantee successful results from the outset. It is assumed that the reader is already familiar with basic motion picture techniques, therefore only the additional requirements related to shooting movies in the air will be considered here.

There are three different types of aerial coverage: ground-to-air, air-to-air, and air-to-ground. Ground-to-air photography is similar to ground coverage and does not involve any particular change in techniques. The usual compensation for exposure (closing down 1 to 1½ stops) must be made, however, when shooting into the sky. Shots made of one plane from another near-by plane, when both are in flight, is called air-to-air coverage. The filming of a ground subject from a plane in flight is termed air-to-ground coverage. Most aerial assignments will call for the latter type of coverage.

When filming from the air the three greatest problems are: locating your "target" or subject, reducing picture shakiness to a minimum, and eliminating the effects of aerial haze. Each of these problems will be considered in turn.

The "target," or subject (if not familiar to your pilot) should be checked in advance on his flight map. In a joint briefing the entire mission and events (insofar as they are known or predictable) should be discussed, and a complete understanding of the "target" location, the direction of approach, the direction of circling the "target," and the desired altitudes for filming should be reached. These decisions are largely up to the cameraman. At all times, in aerial photography, close coordination and co-operation between the pilot and the photographer is essential.

The pilot will be concerned with the safety of his passenger or passengers, and compliance with flying regulations. He will brief you on the use of the safety belt and how to get into your parachute harness, if one is to be worn. For communications between photographer and pilot, most planes are equipped with an inter-com system. The pilot will probably brief you on the proper use of the inter-com "mike" and headphones. If the plane has no inter-com, appropriate hand signals should be decided upon prior to the flight.

When filming from a light plane or a helicopter the cameraman's shooting position is not left to choice. If called upon to shoot from a larger plane, however, it is advisable to take a position in the nose or well toward the tail structure of the plane. In either position the angle of vision is fully adequate, so it is seldom necessary to shoot from right angles to the craft.

Movies taken at right angles from a plane tend to be choppy. The "target" is passed more rapidly, consequently your shooting time is shorter. Unless your subject is quite a distance away, you will pass the "target" too quickly to attain proper scene length.

When possible, aim your camera a little forward or to the rear. The subject will stay in your field of view for a longer period of time, and any lurching of the plane will be less apparent, when screened, due to the greater camera to subject distance.

In certain instances you may be compelled to shoot at right angles to your line of flight, as when filming from an "open cockpit" type of plane, where the shooting field is broken by wing and tail structures, or when shooting air-to-air coverage of an aircraft flying parallel to you.

Steady support of your camera is another important factor in obtaining a smooth, steady, screen image. In a light plane there is usually a considerable amount of vibration. Therefore it is not advisable to attempt rigid support of any but the heavier production-type cameras. When filming with a 16mm or 8mm camera, hand-hold the camera while shooting and *avoid any attempt to steady or support it on the window ledge* or any other part of the plane. Keep elbows in close to your body. Avoid any contact with the plane except for the seat, and the placement of your feet on the floor. Although you should not lean against the window, it is important to lean as close to the window as possible and keep your camera substantially higher than the lower edge of the window opening in order to avoid image cut-off if the plane should hit some rough air.

In filming with a camera that is too large to hold by hand, mount the camera on a tripod or some improvised support. In some cases a specially devised shock-absorbent rubber section may be attached to the base of the camera and then mounted on the supporting tripod. In the larger type planes a support is generally used regardless of the size of the camera. Some cameramen use the so-called "Hi-hat," which is a very short tripod with a solid fixed-leg structure and holes at the base of the legs for bolting down. This is a decided advantage because any tripod used in aerial work should be bolted or tied-down securely.

All these factors—position in the plane, filming angle, and camera support—play an important part in obtaining a steady image, but there are still others yet to be considered. The first of these has to do with the degree of shutter opening (D.S.O.) in relation to percentage of frame-overlap of the terrain being photographed. (This will not concern the average amateur unless he uses a variable shutter camera, such as the Cine-Special.) Contrary to popular belief, a narrow shutter opening will not neutralize the effect of vibration. While each picture may be slightly sharper with a small opening, they will be apt to flicker when projected. It is better to sacrifice extreme sharpness than to have too great an interval of terrain movement between frames. The resultant flicker from a narrow shutter opening becomes even more pronounced as the plane speed increases. It is good practice to use the largest possible shutter opening which will stop motion.

With the smaller cameras having fixed shutters no adjustment, of course, is possible. But on variable shutter models, the shutter should not be closed down beyond the 100° mark.

Increasing the number of frames-per-second will also greatly aid in compensating for the speed of the plane, and

(Continued on Page 552)

FILTERS are an inevitable necessity when shooting from the air. They make it possible for the lens to penetrate fog, smog and haze to produce an image of the scene much more distinct than it appears to the eye.

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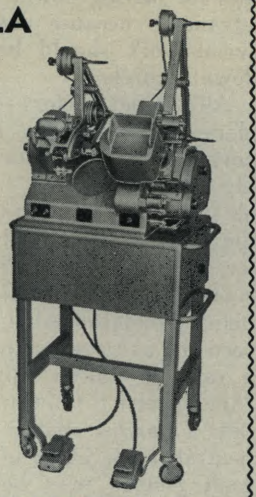

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FILMING "THE AFRICAN LION"

(Continued from Page 535)

the cameras were focused on the subject and filming began on one of the most interesting sequences for "The African Lion."

Traveling over the great prairie distances naturally consumed considerable motor fuel. To avoid running out of gas at a dangerous or inopportune time, Milotte cached 50-gallon drums of gasoline at various points within the area selected for photography. As the drums were emptied, they were returned for refilling on the next trip to Nairobi.

In addition to the four-wheel-drive truck previously described, the Milottes also brought along a British version of the Jeep, called a land rover. This served the dual purpose of insuring transportation in the event the truck broke down, and a light, fast mode of transportation for certain filming situations.

No natives or other helpers accompanied the Milottes into the African wilds. They traveled alone, except for an occasional visit from a Park ranger—one driving the Jeep and the other the truck. The most fearful moment of their whole African adventure came one evening when a big herd of elephants, led by enormous tusked bulls, crowded in around a water hole. Elma was caught by surprise and had to scamper up a tree and take refuge on a half-constructer camera platform. There she remained, crouched on a single plank, too terrified to move for hours until night fell. Al and a visiting Park ranger were trapped inside the truck some distance away and could not come to Elma's rescue. Much later while the beasts were busy with their bathing, they slipped through and got her down from her perch. Back in the truck, the trio remained hidden and quiet all that night and until noon the next day when the elephants finally dispersed. They could have pushed the truck over and wrecked it at the slightest alarm.

Another close call occurred in a remote region when Milotte and a Park patrol officer rescued a rhino from certain slow death in a mud trap. They hauled him out with heavy ropes attached to the truck. In repayment, the rhino upon being freed, charged Al. He fled to the truck just a few yards ahead of the deadly pitching horns. All the while this was going on, Elma, who was shooting the rescue, stuck to her guns and photographed her husband's narrow escape, stopping the camera only when the charging rhino hit the truck's front bumper with a shock like an earthquake.

To select a family group or an individual for close study from the welter of creature life was a bewildering experience for the Milottes when first they set out from Nairobi in their specially built four-wheel-drive truck. Yet, as they got their bearings, they learned that their quarry had to be stalked and found anew every day, despite its incredible profusion. The hunt for food and water, sudden migrations, weather conditions and unaccountable mass moods made the presence of grazers and predators alike unpredictable. As their subjects moved, the Milottes had to move, Gradually, the pattern of mid-African animal behavior became understandable — and predictable to some extent.

In addition to carefully-chosen equipment and a knowledge of wildlife lore and the African terrain, the Milottes success as wildlife photographers is attributable to still another quality—that of infinite patience. For this kind of photography involves more than anything else the technique, if we may call

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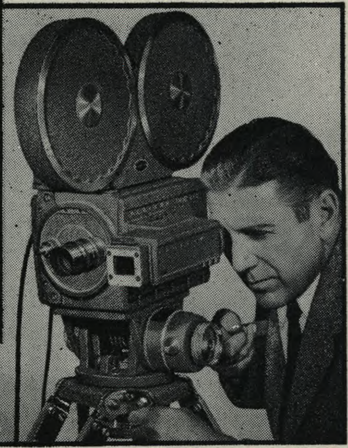

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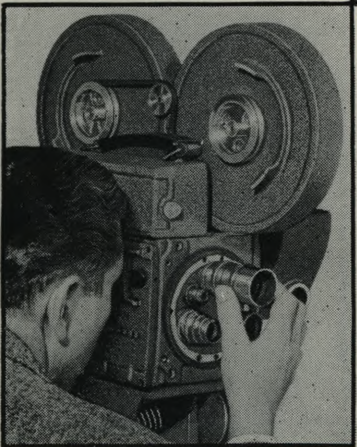

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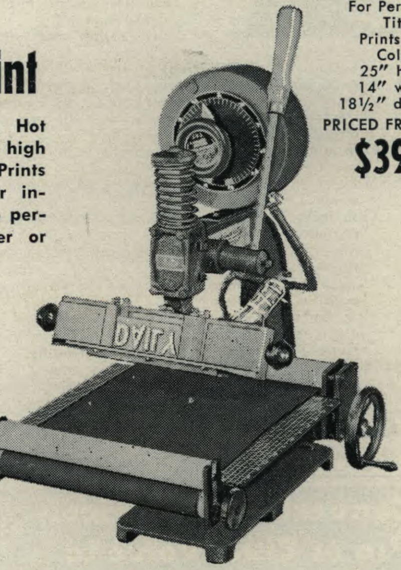

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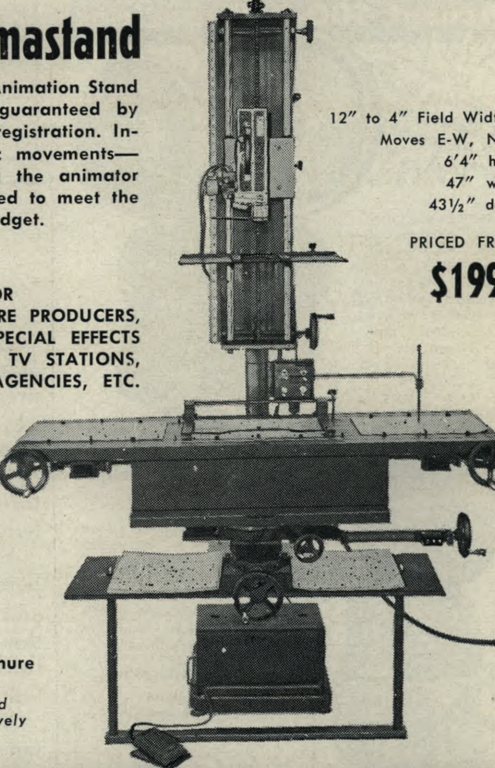

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HOLLYWOOD, CALIF. OFFICE—Dept. F, 6331 Hollywood Blvd., HO 7-9202—*For Other Important S.O.S. Offerings See Pg. 516* it that, of *watch and wait*—where the price of success is eternal vigilance.

Al Milotte says that perhaps their greatest enemy was not the ever-present danger of attack from animals or of being suddenly marooned in danger areas but the nervous strain induced by the steady vigilance necessary to capturing the rare shots that have made "The African Lion" such a success. There were days when scarcely a usable shot was made with the cameras. Yet it was necessary for both Al and Elma to sit quietly, for hours, sometimes, eyes fixed on a clump of trees or brush where a suspected subject might suddenly emerge. This is the sort of life these two intrepid nature-loving, camera addicts endured for two years and eight months in order to shoot 100,000 feet of 16mm Kodachrome, out of which Disney technicians selected and put together a mere 6,000 that is being released next month as "The African Lion."

MAKE-UP MAGIC FOR TODAY'S COLOR FILMS

(Continued from Page 528)

with each new advance in negative manufacturing progress, make-up techniques and colors are devised to take fullest advantage of the film while, at the same time, compensating where possible for the unfortunate properties remaining in each individual type of film. Check your film advances and changes constantly, to keep step wtth the required changes in make-up requirements. As Max Factor, Jr. says: "Only continued care and observation of make-up can serve to produce a successful effect under rapidly-changing types of new film cmulsions."

SUGGESTED MAKE-UP CHART FOR 16MM KODACHROME

	WOMEN			MEN		
	FAIR	MEDIUM	DARK	FAIR & MED.	DARK	TAN
Pan-Cake Make-Up or	23M	Tan 1	Tan-Rose	Tan 2	K-1	K-2
Pan-Stik Make-Up	Olive	Deep Olive	Natural Tan	Golden Tan	K-1	K-2
Powder	Natural	Natural	Olive	Smr Tan	Smr Tan	Smr Tan
Creme Rouge	Blondeen	Blondeen	Blondeen			
Dry Rouge	Clear Red 1	Clear Red 1	Clear Red 1	Dark Tech.	Dark Tech.	Dark Tech.
Eye Shadow		Brown or Grey			Brown	
Moist Rouge (Lips)				T-3		
Eyebrow Pencil	Lt. Brown	Brown	Black		Brown or Black	
Eyelash Make-Up	Brown	Brownish-Black	Black		Brown or Brownish-Black	
Lipstick	Clearly Red	Clearly Red	Clearly Red			

For Tanned effect on women, use Tan No. 2 Pan-Cake, or Golden Tan Pan-Stik.
For Pink shade of lipstick, use Party Pink; for pink-orange shade, use Coral Spray; for rose shade, use Red Red Rose.
For outdoor shooting use cheek rouge over a larger area on cheeks to prevent loss of color, especially if reflectors are used.

PRE-PRINTING PREPARATION OF 16MM FILMS

(Continued from Page 531)

Dissolves: It is suggested that 48 frames be used as a standard overlap in preparing A & B rolls for dissolves. (Fig. 1). This does not necessarily mean that the length of the printing effect will be 48 frames, but it will permit laboratories to make dissolves of varying lengths up to two seconds duration.

Some laboratories request that a number of extra frames be left on the head and tail of each scene in matching. For this reason the laboratory used should be quizzed and their recommendation followed.

Series of Effects: When dissolves or fades follow each other at very short intervals, caution should be exercised; for the film editor should remember that on a single roll, no new effect can be started before the last effect is completed. It is impossible, for example to start a fadeout after a fadein until the fadein cycle is completed in the printer. With a standard of 48 frames overlap, it is recommended that the minimum length of a scene that incorporates an effect at each end be no shorter than 108 frames in the original A & B rolls—i.e., 48 frames for the fadein and 48 frames for the fadeout, plus an additional 12 frames as a safety factor. This scene, in the cut work print, would then be no shorter than 60 frames.

Dissolves Following Cut-Across: If a dissolve or fade follows black leader after a cut-across scene in the original A & B rolls, it is recommended that the black leader be no shorter than 54 frames. This allows 48 frames for the mechanical fader to fade out in order to

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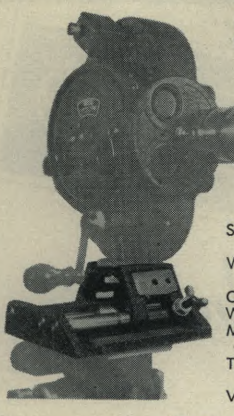

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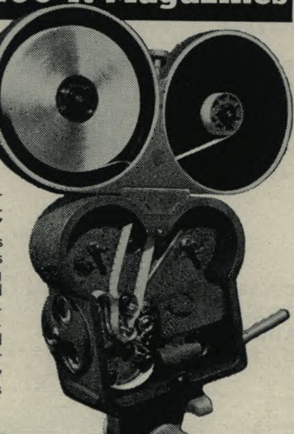

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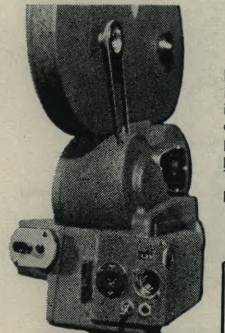

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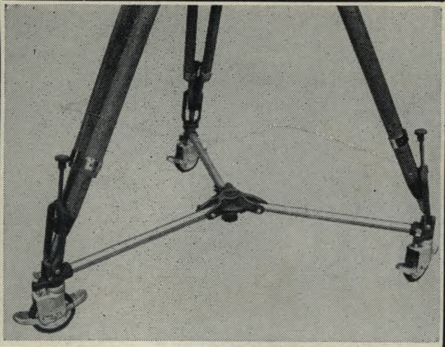

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be ready for the fadein on the beginning of the following effect scene. The 54 frame length allows 6 frames as a safety factor. The same recommendation applies when the effect precedes the cut-across.

Marking Dissolves: It is suggested that the middle of each dissolve be marked by making a small "x" in each of two adjacent frames in the center of each fade, on both the A & B rolls. These marks should be made on the emulsion side of the film—outside the picture area. They will appear in the center of the effect on the perforated edge of the film (not the track edge). The two "x" marks in the A roll will then be exactly opposite the two marks in the B roll, when both rolls are placed correctly in a synchronizer. Thus, the dissolve overlap can be easily checked and correct synchronization of the rolls verified. The emulsion can be scraped by a scriber to form the "x" marks or they can be made with a pen and white, waterproof, quick-drying ink.

Splices: The original should be spliced with the utmost care. It is recommended that before splicing any original, several test splices be made in order to check splicer for correct alignment and for depth and width of the scraped area of the film. Use only enough cement to insure a good splice. Avoid winding a wet splice onto the roll where it may mark the next layer of film.

Instructions to Laboratory: Instructions should accompany each film when it is sent to the laboratory by the producer. These instructions should specify in detail all special effects desired. When footage figures are given to indicate the point where effects are desired, measure the footage from the printer start mark in the head leader. *Do not* use paper clips, grease pencil, Scotch Tape, string, etc., to indicate where effects are desired in the film. Kum Kleen labels can be used, applied to the film itself with safety. These should be placed on the black leader instead of in the scene and on the emulsion side of the film.

The Association's recommendations governing the method of marking work prints to indicate effects includes six specifications: (See Fig. 2).

Fadein: A fadein should be indicated by two straight lines forming a long "V". The two lines should run diagonally for the length of the effect from the edges of the film and converge at the center of the frame at the point of scene change.

Fadeout: The procedure is the reverse of that for the fadein—the lines extending for the length of the effect and meeting at the center of the frame at the point of scene change to indicate where the screen will be totally dark.

Dissolve: A dissolve is in actual practice a fadein of one scene superimposed over a fadeout of another. To indicate a dissolve on a workprint, the markings should be the same as those used for a fadein and a fadeout, but they should in this case overlap each other, as shown in the diagrams. The mid-point of both markings should occur at the splice in the work print and the markings should extend an equal distance into both scenes.

Double Exposures: Double exposures, superimposed titles, etc., should be indicated by cutting into the background scene of the work print a few inches of edge-numbered work print of the new superimposed scene, to indicate where the double-exposure begins. Several inches of the superimposed scene should then be cut in to indicate the end of the double exposure. These two pieces should be connected together by a wavy line.

To insure proper matching, it is essential that one of these small pieces of work print be edged-numbered or identified in some way.

Extended scenes: Scenes to be extended in matching that are indicated in the work print by leader should be marked with a long arrow, the shaft of which is drawn through the leader and the head of which comes up to the last frame of the leader to indicate the length of the extension.

Unintentional Splices: Splices occurring in the work print that are to be disregarded in matching should be indicated by two short parallel straight lines drawn through the splice and at right angles to it. This indicates that the scene is not to be cut at that point.

The Association emphasizes that all marks on work prints be made with a yellow grease pencil. Yellow is recommended because it shows up well on both color and black-and-white films. If any cues are made on the work print for recording or mixing, it is suggested that a red grease pencil be used for this purpose.

The Association has also prepared recommendations for "Preparation of 16mm Printing Leaders," which will be the subject of another article in American Cinematographer next month.

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PHOTOGRAPHY AT 40,000 FEET

(Continued from Page 533)

SAC. Thanks to his cooperation, our company was assured the use of as many planes as we wanted as long as our demands did not interfere with SAC's training program.

One of the last things we did before starting photography of the air sequences was to prepare charts and instruction booklets outlining flight procedure for each take. These were distributed among the group leaders and pilots and to the General at the Air Force base. In this way, the men handling the planes in the air had their instructions in writing as to what action was required, and this went a long way toward minimizing errors and the need for retakes. Augmenting the charts and booklets were the briefing periods which preceded each flight, when all flight personnel and our production personnel assembled in the briefing room. Here, with the aid of blackboard diagrams, the whole flight procedure was explained and our filming requirements outlined.

The in-air refueling operation, which appears in the picture, marks the first time that this operation has ever been photographed for inclusion in a feature film. Tom Tutwiler shot this sequence from Paul Mantz's camera plane, with Mantz at the controls.

At one time while Tutwiler was in the air shooting a sequence of shots, I took to the air in a B-47, from which the canopy had been removed, and made shots showing the effect of air turbulence on the wing surfaces of the plane. This same plane was used again later, with a camera mounted underneath, to record closeups of the plane's giant landing wheels in action.

There have been many cinematographers in Hollywood who have become famous for their ability in aerial photography. Tom Tutwiler, who was an Army Air Force cameraman with rank of Captain during World War II, is one of these. Tom therefore was right at home on this assignment, and especially so in Paul Mantz's B-25; he had done most of his Air Force photography from this type plane during the war.

Filming the story of the Strategic Air Command was the idea of actor Jimmy Stewart, who stars in the production. As a human document "Strategic Air Command" is revealing. As a first opportunity to see this amazing organization in operation it is most exciting. And the broad sweep of VistaVision photography makes this panorama of skyborne grandeur something to be remembered.

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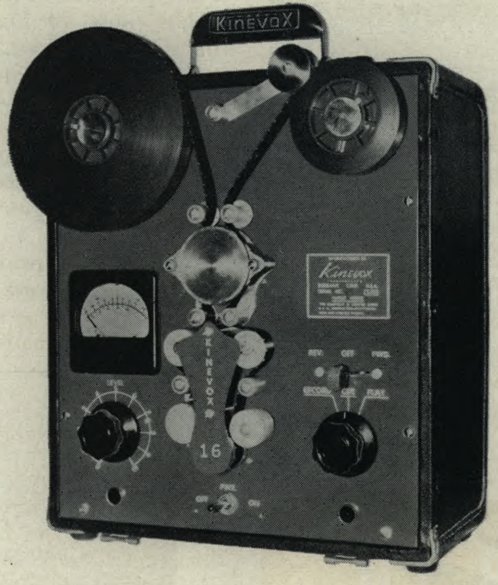

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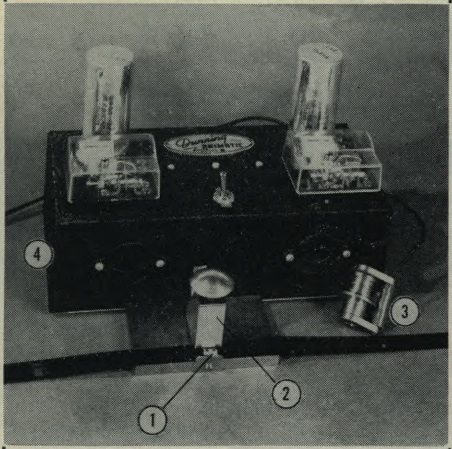

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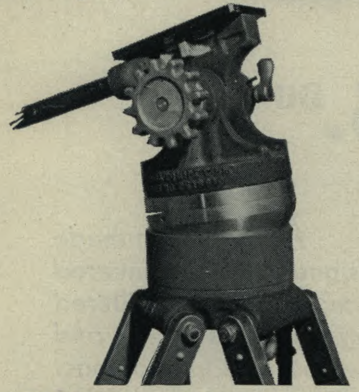

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EXPOSURE DETERMINATION

(Continued from Page 524)

—Unnecessary to change aperture in panning from light to shade.

—Ability to get sharper definition—to stop the action—in shooting high speed action at normal f.p.s., by reducing the shutter opening.

—Eliminates need for using ND filters when shooting fast black-and-white film in bright sunlight.

—Unnecessary to cap lens when rewinding for lap-dissolves. Shutter is closed instead.

The previously-mentioned cameras afford a range of four shutter openings (or speeds): Open, ¾-open, ½-open, and ¼-open. With the camera operating at 16 frames per second, it affords a range of shutter speeds from 1/35th second to 1/40th second.

The following table enlarges on this and shows the great range of shutter speeds available to the photographer whose camera provides for *camera* speeds ranging from 8 to 64 frames per second.

		Shutter Openings			
		Open	3/4	1/2	1/4
Camera Speeds	8 fps	1/18	1/26	1/35	1/70
	16 fps	1/35	1/53	1/70	1/140
	24 fps	1/53	1/70	1/105	1/210
	32 fps	1/70	1/105	1/140	1/280
	64 fps	1/140	1/210	1/280	1/560

NOTE: Because the exposure difference is almost negligible, even numbers can be substituted for certain odd numbers in the above chart. For example:

16 fps: 1/30 for 1/35
24 fps: 1/50 for 1/53
32 fps: 1/60 for 1/70
64 fps: 1/120 for 1/140

From the above table it may be seen that the Cine photographer has available to him the same means of "stopping" fast action as does the still photographer with a Graflex or Speed Graphic camera. When shooting fast-action subject matter such as water skiers, or when shooting from a fast moving car, such action can be shot at 24 f.p.s. sound speed and 1/210 second shutter speed to gain blurless, high-definition results in cine-photography.

When panning from deep shade to bright sunlight with a fixed-shutter camera, exposure consistency is normally maintained (when this is desired) by changing the aperture as the camera moves from shade to light. This not only involves changing the depth of field but usually requires a camera assistant to manipulate the lens diaphragm as shooting proceeds. Where the camera has a variable shutter, it can be operated as the camera is running by the photographer.

Now that we understand these advantages, our next problem is knowing how to readily determine the correct exposure for the various shutter speeds, in view of the fact that meters which do indicate cine camera exposures are usually calibrated for the standard silent speed of 16 frames per second. Some meters, such as the Norwood "Director," have the "frames per second" camera speeds inscribed on the computer dial as an aid to calculating exposures for cine cameras. For illustrative purposes, the author shows the comparative shutter openings of variable shutter cameras, such as the Cine-Special (See Fig. 1). The arrow points to the "Cine Frames" figures, otherwise known as the frames-per-second figures. Opposite the author's lettering "Shutter Opening" appear the figures for same. "O"—fully open—appears above the 16 f.p.s. figure; ¾ over the 24 f.p.s. figure; ½ over the 32 f.p.s. figure; and ¼ over the 64 f.p.s. figure. The figures in either row (of the author's illustration) are synonymous and can be memorized for future use. Also, it is suggested that for reference the illustration of the marked meter dial (Fig. 1) be clipped from the magazine and carried conveniently with the meter.

To explain further the use of these comparative figures for those using cameras with variable shutters, let us take a hypothetical situation: Using color film in a Cine-Special operating at 16 f.p.s., the subject must move from deep shade to bright sunlight, with no break in the action. Our first step is to take a normal reading in the shade—the meter registers f/4. Next we take a reading in the sun—f/8. (See Fig. 2). Now our problem here is to maintain uniform exposure, going from shade to light, without altering the camera speed. This will be accomplished by gradually

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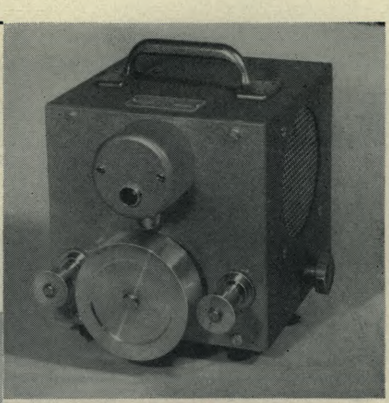

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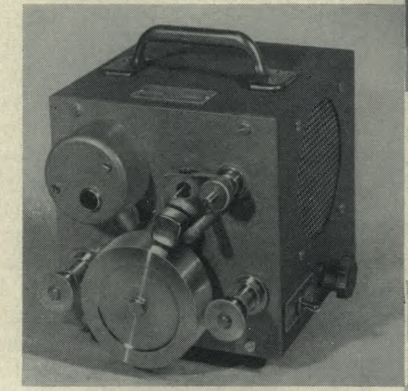

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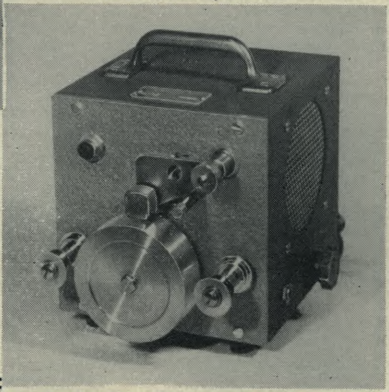

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closing the shutter as the camera pans from shade to light. But how much shall we close it? A glance at the meter dial shows that f/4 (the shade reading) appears opposite the ¼-open shutter mark (2, in Fig. 2). This indicates that the variable shutter can be moved from open to ¼-open in full sun to maintain the same exposure during the panning of the camera.

To clarify this, the lens is set at f/4 at the beginning of the pan (in shade) and the shutter in open position. As the camera is panned, the shutter control lever is gradually moved until shutter is closed down to the ¼-open position when the camera's field of view reaches full sun. Thus the shutter speed of the camera during the panning action ranges from 1/35 second (in open position) to 1/140 second at conclusion of the shot when it is stopped down to ¼-open position. The lens aperture, meanwhile, remains constant at f/4, the amount of light reaching the lens is controlled—and kept uniform—by gradually closing the shutter.

Another example of the extended usefulness of the modern exposure meter is its ability to determine the lens opening to use when shooting high speed action in slow motion. With the Cine Special, this would be at 64 f.p.s. Let us say that we have decided to use the smallest shutter opening — ¼-open —

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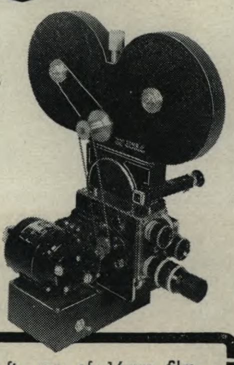

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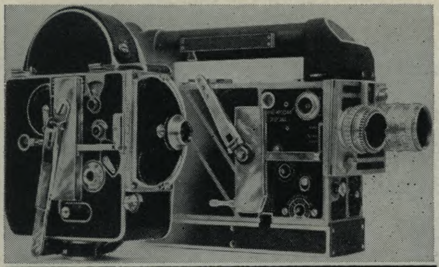

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which would give an exposure of 1/560 second (See table), and we wish to know what the aperture setting should be. An exposure meter reading of the existing light shows the value to be f/8 at 16 f.p.s. (1 in Fig. 2). Checking this same dial setting it is noted that the exposure at 64 f.p.s. is f/4 (2 in Fig. 2). We then set the *16* of the Cine Frames dial over the f/4 mark (3 in Fig. 2), and a glance at the exposure figure for the ¼-open shutter positions shows it to be f/2 (4 in Fig. 2)—the lens setting for the 1/560 second shutter speed.

Taking a reverse situation—shooting at 8 f.p.s. in order to speed up action on the screen, *but at a higher shutter speed* than afforded by the normal fully open shutter. An exposure meter reading of the light shows it to be the same as in the example above, i.e., f/8 at 16 f.p.s. Referring to the figure 8 (for f.p.s.) on the Cine Frames dial of the meter, we note the aperture setting for this camera speed is f/11. We next set the figure 16 of the Cine Frames dial over the f/11 mark and refer to the exposure indicator under the ¼-open mark which is f/5.6, giving a shutter speed at 8 f.p.s. of 1/70 second.

The ¼-open shutter position was selected for illustration in the above instances only as an example. The same procedures would apply for the ½-open or ¾-open positions. Selection of shutter opening, of course, will sometimes depend on how fast a shutter speed is required to "stop" certain fast action and prevent blur.

Because the variable shutters of the cameras considered here all give the basic exposure of 1/35 second at 16 f.p.s., the aperture figures for other f.p.s. speeds may appear in amounts not corresponding to the even figures found on most exposure meter dials. (See table on page 548). In most cases, the difference is so slight as to be disregarded, but critical workers may wish to change to another aperture by electing to shoot at a different shutter opening.

For example — shooting high-speed panchromatic film out of doors, the meter reads f/28 at 24 f.p.s. But the smallest aperture afforded by the camera lens is f/22. A glance at the modified meter dial shows that a stop of f/18 can be used instead by shooting with the shutter in the ¼-open position. **END**

NEW S6 MAGNETIC RECORDER

(Continued from Page 537)

where only a single microphone is used. In the two-unit system, all functions are available such as recording gain control, playback gain control with a selective switch for "Live" and "Tape," dialogue equalizer, and adjustments for optimum frequency response.

The single case unit employs Stancil-Hoffman's recently developed subminiature compression recording and playback amplifiers. Incidentally, this electronic section, complete with its dry batteries, weighs a mere 3¾ pounds. The compression feature offers a wide latitude of sound pick-up so that it is possible to record the speech of a moving person ranging from microphone position up to a distance of 10 to 15 feet away, with the recording level remaining constant.

All of the units are uniform in size. Panel is 14½" x 10¾". Depth of each unit is 6". To keep weight at the absolute minimum, a durable, flexible "Royalite" plastic case encloses each unit. Case is held in place by two thumbscrews, which also secure the handle and four rubber feet. The case may be removed in a matter of seconds to permit access to the mechanism components. Choice of the "Royalite" case was predicated on the desire to provide equipment with lowest possible weight for low-cost aerial or express shipment.

While the model S6 is said to represent one of the major advancements in portable magnetic sound recorder design, the most interesting feature perhaps is the system's adaptibility for battery operation. With sound systems through the years a wide variety of battery voltages have been used. Generally no consideration has been given to the power facilities necessary for the camera, although the chief purpose of a field recording system is to provide lip-sync sound with a minimum of equipment.

In designing the S6, a study of the efficiencies of batteries indicated that a 24-volt battery was the most ideal, considering weight and size, and it was made the basic power source for operation of both camera and sound equipment.

All amplifier filaments of the S6 work in 24-volt strings which can be directly tied across the battery. The amplifiers may be operated from "B" batteries, but a tremendous amount of weight is saved through the use of a small dynamotor which is an integral part of the system, and which operates from the 24-volt battery to furnish 250-volt output. The dynamotor is completely enclosed and shielded, both electrically and accoustically.

As stated earlier, either a 110-volt single-phase or a 220-volt 3-phase motor

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may be used interchangeably with the system. When operating from batteries, it is only necessary then to provide one or the other power system to handle the recorder. In the early stages of developing the Model S6, the company proposed using a "multi-duty" or AC/DC camera motor operating from a 24-volt battery source. Due to the extremely high cost of motors of that type and to the mechanical problems in adapting them to the wide variety of motion picture cameras in use today, the proposal was discarded in favor of the comparatively inexpensive 24-volt-DC-to-110-volt-AC vibrator inverter. This item of equipment weighs only 19 pounds and has ample capacity to power any 16mm camera motor along with the S6 transport system. It is adequately filtered so that it offers no objectional electrical noise. The recording and playback amplifiers plus the inverter altogether pull in the order of 4 amperes from the 24-volt battery, so that it is possible to operate for an average day of normal shooting without need for recharging.

In designing the 35mm camera drive, the company encountered a severe problem. Because the Mitchell NC and BNC cameras have long been standard equipment in Hollywood studios, cameramen have come to favor a 3-phase 220-volt drive motor. It offers the reserve power

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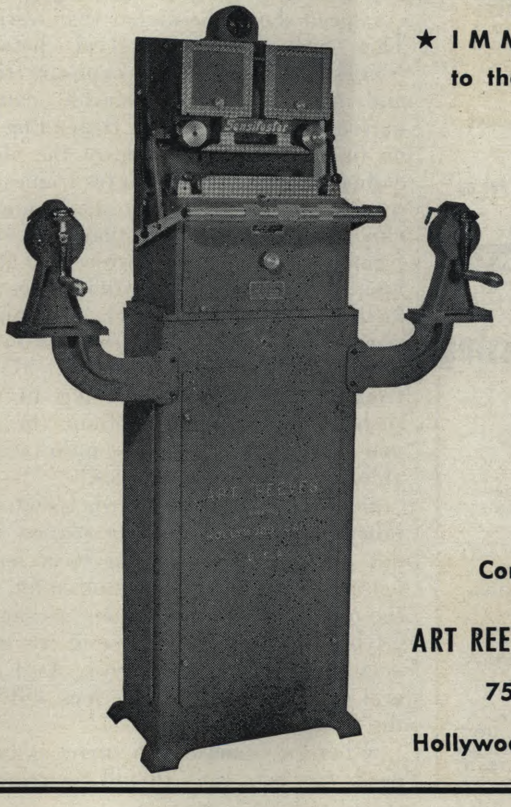

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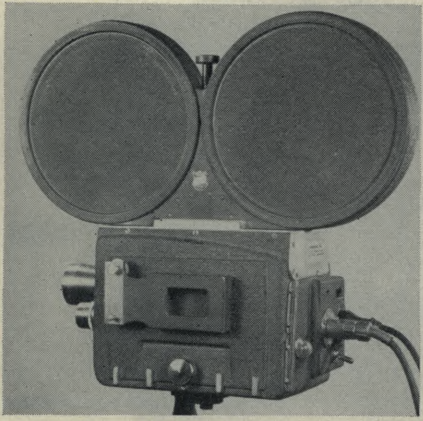

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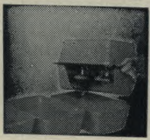

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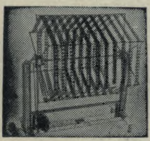

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necessary to drive the camera efficiently at low temperatures, and it is extremely quiet acoustically. But on location camera motors of this type generally require use of a sound truck, which has battery power sufficient to drive both the camera motor and the recording equipment, and this often limits portable operation and distant location shooting, which are important factors in film production today.

To overcome this, Stancil-Hoffman designed a rotary converter generating 230 volts of 3-phase current from a 24-volt storage battery. This provides sufficient output to drive a Mitchell camera motor along with the S6 recording system under any environmental conditions.

The converter, along with its control unit, also permits "undercranking" the camera, which is so important in many motion picture photographic assignments. The converter weighs 35 pounds and operates from the same 24-volt battery which powers the electronic section of the S6. It is acoustically quiet and does not create any electrical noise in the system. The control unit, also known as the camera control, operates from a remote position to stop and start the converter; it also sets the speed, as indicated by vibrating reeds, in any range between 16 and 26 f.p.s. The reeds are calibrated in half-frame increments, from 23 to 25 frames.

According to William Stancil, president of the company, in designing the S6 system, the company has endeavored to provide as accessories all cables, batteries, battery chargers, spare tube kits, microphones, sound powered telephones, plug-in audio oscillators necessary to field maintenance—everything that is required for a complete sound recording system.

"Our aim," he said, "has been to provide the film producer with a portable magnetic recording system that is sufficiently complete, compact, and efficient to enable him to accomplish the most difficult mobile or location shots."

SHOOTING MOVIES FROM THE AIR

(Continued from Page 541)

therefore in reducing the interval between exposed frames of the terrain. In addition it will give a shorter exposure time, or increased shutter speed. This more than compensates for the slightly more prolonged exposure where a larger shutter opening is used, and also results in a slow-motion effect which minimizes the effect of vibrations.

When filming from a plane the camera speed should be higher than normal. This reduces the interval between frames, gives a shorter exposure time, and slows down undesirable camera movement on the screen. Depending upon the speed and altitude of the plane, a shooting speed of 32 to 64 frames per second should be used to obtain normal effects in 24 f.p.s. projection. (24 to 48 frames per second for projection at 16 f.p.s.). As increasing altitude takes you farther from your subject, the camera speed may be reduced without inducing flicker on the screen. When filming from an extremely slow-moving aircraft, such as a helicopter or blimp, the normal camera speed may be quite acceptable, even for low altitudes.

Because of the forward speed and inherent vibration of most planes, it is not advisable to use long focal length lenses for aerial cinematography. On the other hand a wide-angle lens shouldn't be used either, because of it's tendency to exaggerate distances. As a general rule, the normal angle lens will give the best results.

Where a camera with turret is being used, the lens caps should be removed from all lenses, otherwise they may be blown off and lost in the slip stream during flight.

The taking lens should be set at infinity focus and locked or taped in that position. Any other settings that might easily be knocked out of position should be taped in place.

Basic exposure calculations for aerial photography are essentially the same as those for ground photography. In other words, whatever, basic exposure you would use for a subject on the ground, use the same exposure for that shot from the air. Exposure allowances must be made for faster camera operating speeds and when using some haze-cutting filters. Where your target (subject) involves a large amount of surrounding foliage, allow for additional exposure. On the other hand, if confronted by large bodies of sand, water, snow or numerous puddles of rainwater, the additional reflectance will require stopping down exposure. In the air, exposure consideration must be given for sidelighting and backlighting, just as in ground photography. However. for aerial work, a greater hazard of overexposure exists for backlighted subjects surrounded by water because it casts back reflections of the sun.

When exposures are determined with a reflectance type exposure meter, readings should be taken on the ground before the take-off. Meter readings from the air pick up too much reflectance of haze and therefore tend to give a false reading. Where exposure conditions

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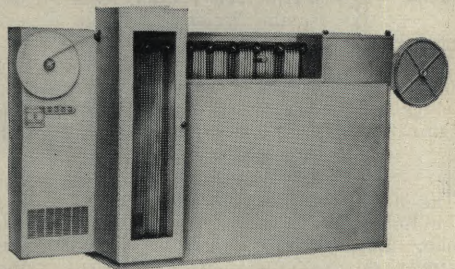

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change while in flight, and you need to take meter readings, take a reading from the palm of your hand, with the hand facing the sun in the same relationship as the sun is to the "target."

Meter readings from a neutral "grey card" will be found more consistently reliable if you have already established that practice. In the plane meter readings should be taken with the sunlight coming through an open window to strike reflective surface. When possible shoot through an *open* window. If you must film through plexi-glass then it will be necessary to open up from a half to a full stop to allow for the loss of light transmission. A meter reading taken with the light source filtering through a plexi-glass window would discount the light loss in filming and will therefore read directly in the correct basic exposure. Don't forget, however, to open-up for a change in frames per second. (Doubling f.p.s. will require opening one f/ stop.) Also don't forget to open up additionally for the haze-cutting filter if one is used. (See the accompanying table on filters.) While air-borne, do not expect to get a reliable reading, from an incident-type meter, unless it is converted for reading reflected light. Where weather conditions are not changing rapidly, the best bet is to determine exposure and make all

(Continued on Page 555)

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- Russell Harlan, "The Last Hunt," (Eastman Color; CinemaScope) with Robert Taylor, Stewart Granger, Lloyd Nolan. Richard Brooks, director.
- Robert Surtees, "Tribute To A Bad Man," (Eastman Color; CinemaScope) with James Cagney, Stephen McNally, Irene Papas, Don Dubbins. Robert Wise, director.

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- Loyal Griggs, Wallace Kelley, Peverell Marley, "The Ten Commandments," (VistaVision, Technicolor), with Charlton Heston, Anne Baxter, Yul Brynner, et al. Cecil B. De Mille, director.
- Daniel Fapp, "The Birds and the Bees," (Technicolor, VistaVision), with George Gobel, Mitzi Gaynor. Norman Taurog, director.

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- Milton Krasner, "Rains of Ranchipur," (Color; CinemaSope) with Lana Turner, Richard Burton, Fred MacMurray, Joan Caulfield, Michael Rennie, Paul H. Frees. Jean Negulesco, director.
- Charles Clarke, "Carousel," (Color; CinemaScope) with Frank Sinatra, Shirley Jones, Barbara Ruick, Cameron Mitchell, Claramae Turner, Audrie Christie, Robert Rounseville. Henry King, director.
- Leo Tover, "The Lieutenant Wore Skirts," (Color; CinemaScope) with Tom Ewell, Sheree North, Les Tremayne. Frank Tashlin, director.

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- Ellis Carter, "A Day of Fury," (Technicolor), with Dale Robertson, Jock Mahoney. Harmon Jones, director.
- William Daniels, "The Benny Goodman Story," (Technicolor) with Steve Allen, Donna Reed, Berta Garsten, Barry Treux, Harry James, Ben Pollack, Gene Kruppa, Lionel Hampton, Teddy Wilson. Valentine Davies, director.
- Ellis Carter, "A Day of Fury," (Technicolor) with Dale Robertson, Mara Corday, Jack Mahoney, Carl Benton Reid, Jan Merlin, John Dehner. Harmon Jones, director.
- Jack Russell, "Law Man," (Technicolor) with John Agar, Mamie Van Doren, Richard Boone, Leif Erickson, Coleen Gray. Charles Haas, Director.
- Harold Lipstein, "Pillars in the Sky," (Technicolor; CinemaScope) with Jeff Chandler, Dorothy Malone, Keith Andes, Ward Bond. George Marshall, director.
- Maury Gertsman, "The Creature Walks Among Us," with Jeff Morrow, Rex. Reason, Leigh Snowden, Gregg Palmer. John Sherwood, director.

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- William Mellor, "Giant," (Warnercolor) with Elizabeth Taylor, Rock Hudson, James Dean, Jane Withers. George Stevens, director.
- Sam Leavitt, "The Court-Martial of Billy Mitchell," (Warnercolor, CinemaScope), with Gary Cooper, Ralph Bellamy, Fred Clark, Herbert Heyes. Otto Preminger, director.
- Edwin DuPar, "The Lone Ranger," (Warner-Color) with Clayton Moore, Jay Silverheels, Bonita Granville, Lyle Bettger, Robert Wilke, Perry Lopez, and Michael Ansara. Stuart Heisler, director.
- Ted McCord, Tom Tutwiler, "The Spirit of St. Louis," (Warner-Color; CinemaScope) with James Stewart. Billy Wilder, director.

INDEPENDENT

- Winton Hoch, "The Searchers," (C. V. Whitney Pics.; Color; VistaVision) with John Wavne, Jeff Hunter, Vera Miles, Ward Bond, Natalie Wood, Lana Lisa Wood. John Ford, director.
- Guy Roe, "Six Gun Lady," (Lyon & Bartlett Prods.) with Peggie Castle, William Talman, Marie Windsor, Bob Lowery, Joe Besser, Ian MacDonald, Earl Lyon. Richard Bartlett, director.
- Karl Struss, "Mohawk," (Eastman Color; Wide-screen; for 20th Century-Fox release) with Scott Brady, Rita Gam, Neville Brand, Lori Nelson. Kurt Neumann, director.
- Lucien Ballard, "The Killer Is Loose," (Crown Prods.) with Joseph Cotten, Rhonda Fleming, Wendell Corey, Michael Pate, Alan Hale. Budd Boetticher, director.
- Lionel Lindon, "Around the World in 80 Days," (Michael Todd Prods.; Todd-A-O) with David Niven, Cantinflas, Luis Dominguin.

TELEVISION

(The following directors of photography were active last month in photographing films for television in Hollywood, or were on contract to direct the photography of television films for the producers named.)

Alan Stensvold, "Dr. Hudson's Secret Journal," (Authors); "Andys Gang," (Ferrin).

Kenneth Peach, "Steve Donovan, Western Marshall," (Chertok); "Fury," (TPA).

Karl Freund, "December Bride," (Desilu); "The Jimmy Durante Show," (Fawn-Desilu).

Nick Musuraca, "The Lineup," (Desilu).

Sid Hickox, "My Favorite Husband," (CBS-Desilu).

Robert DeGrasse, "Make Room for Daddy," (Marterto-Desilu); "It's Always Jan," (Janard-Desilu).

Harold Wellman, "Wyatt Erp," (616-Desilu).

Walter Strenge, "The Way," (Family).

Virgil Miller, "You Bet Your Life," (Filmcraft).

Ernest Miller, "Gunsmoke," (Filmaster).

William Bradford, Flying A Prodns.

Lester White, "Navy Log," (Gallu).

Mack Stengler, "Ina Ray Hutton Show," and "It's Fun To Reduce," (Guild).

Norbert Brodine, "The Loretta Young Show," (Lewislor).

Stuart Thompson, "Lassie," (Maxwell).

George E. Clemens, "Schlitz Playhouse of Stars," (Meridian).

Henry Sharp, "Sheena, Queen of the Jungle," (Nassour).

Jack McKenzie, "Frontier," (Outpost).

Lucien Andriot, "It's a Great Life," (Radic).

Ed Fitzgerald, "You Are There," (Roach).

Lothrop Worth, "The Great Gildersleeve," (Roach).

Gilbert Warrenton, "Sergeant Preston of the Yukon," (Skinner).

Lloyd Ahern, "My Friend Flicka," (TCF).

Guy Roe, "Gangbusters," (Visual).

Carl Guthrie, "Cheyenne," and King's Row," (Warners).

Harold Stine, "Casablanca," (Warners).

Joe Biroc, "This Earth . . . This Land," (Town & Country).

SHOOTING MOVIES FROM THE AIR

(Continued from Page 553)

lens settings before leaving the ground.

At higher altitudes, aerial haze becomes a problem. Methods of counteracting this haze will vary, depending on whether color or black-and-white film is being used. First, consider the use of haze-cutting filters for black-and-white film. The higher the altitude, the more harmful is the effect of haze, and, accordingly, the denser your filter will be. Exposure, therefore, will also vary according to the filter used.

Aerial views from high altitudes are often veiled by water vapor in the atmosphere, though this is not always visible to the eye. If the haze is visible it will appear bluish, and is not to be confused with smoke, dust, or fog. Smoke and dust are solid particles. Fog is made up of millions of tiny water particles (not water vapor) and these particles cannot be penetrated by the use of haze cutting filters.

Haze has the effect of reflecting and scattering light of the shorter wave lengths (ultra-violet and blue light). Since all black-and-white films are sensitive to light of the shorter wave lengths, this extremely actinic light (full of radiant energy) will be recorded to produce a milky appearing veil over the scene if no filter is used. The veiling of the image becomes more pronounced as altitude of the plane is increased, or if the plane-to-target distance is increased as in high obliques.

The following table indicates the filters recommended for use with panchromatic film under various atmospheric conditions, and at different altitudes. Filter factors are included in parenthesis. Personal experience may suggest some variations from this table, particularly in the more arid region, where aerial haze is much less of a problem.

Color aerial photography does not permit a wide selection of haze-cutting filters. The amateur cinematographer may wish to use a U.V. filter in conjunction with Daylight Kodachrome. The Type A conversion filter (Wratten #85) used with Type A Kodachrome screens out much of the haze and gives very satisfactory results.

Framing for aerial movies is much the same as for ground coverage. Keep the subject as nearly centered as possible or a little above center. In low obliques and verticals the horizon will not show at all. In high obliques let the horizon come where it may, so long as the target is fairly well centered. Avoid including any more than a small portion of wings, struts, propellers, or engine nacelles. Do not allow the window edges to cut off any of your image. When filming from a multi-engined plane, avoid shooting through the exhaust stream, otherwise the screened image will be wavy, distorted, or blurred.

You rarely will be able to shoot in basic sequence from the air. Nevertheless try to film your subject from three different altitudes whenever possible, so that in editing, it can be cut for basic sequence, if desired.

END

FILTERS FOR BLACK AND WHITE AERIAL MOTION PICTURE PHOTOGRAPHY

	Altitude	Relatively No Haze (Very low humidity)	Light Haze (Moderate Humidity)	Heavy Haze may appear bluish (High Humidity)
Low Obliques and Verticals	Below 1000 feet	No Filter	K-2 (2x) light yellow	G (3x) deep yellow
	1000-2000 feet	No Filter	G (3x)	A-25 (8x)
	2660-5000 feet	No Filter	G (3x)	light red
	5000-10,000 feet	K-2 (2x)	A-25 (8x)	A-25 (8x) deep red or *Infra-red
	Above 10,000 feet	G (3x)	A-25 (8x)	deep red or *Infra-red
High Obliques (including horizon)	Below 2000 feet	K-2 (2x)	G (3x)	A-25 (8x)
	Above 2000 feet	G (3x)	A-25 (8x)	deep red or *Infra-red

*Used with Infra-red film
(2X=opening one f/stop)
(3X=opening one and one-half stops)
(8X=opening three f/stops)

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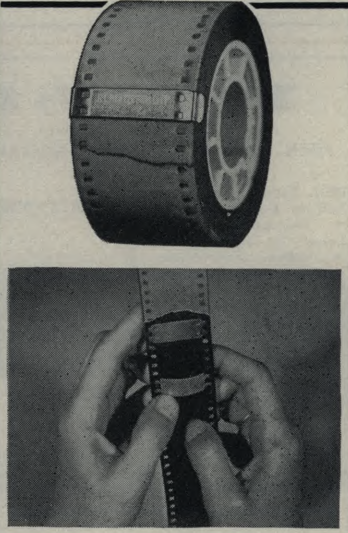

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FILMING A PRIZE-WINNER

(Continued from Page 538)

move indoors if the sky should become overcast.

Ruffner took special pains to keep the lighting at the same level in his indoor shots, so that the scenes would match when they were edited. He accomplished his purpose by moving his lights closer or farther from his subjects rather than by adding to or subtracting from the number of units used. Notes on exposure were made after each shot so that corrections could be made, if retakes were necessary.

Another practice which Ruffner found to be invaluable was the projection on his film viewer of scenes shot on the previous weekends. By using this technique, which he borrowed from professionals, Ruffner could compose and light his shots so that they would fit smoothly with those already taken.

While filming the indoor scenes, Ruffner discovered that his 15mm lens did not possess a wide enough angle. He was obliged to buy a 13mm lens which enabled him to take the necessary shots in the cramped quarters.

Because the indoor shooting was carried on at intervals of two or three weeks, meticulous notes were kept. Such seemingly trivial items as the position of a plate on the dining-room table and the number and shape of Geraniums in a vase were recorded for further reference.

While Ruffner was solving his photographic problems, the actors had their own difficulties with which to contend. Mrs. Osenda had to forego a permanent for several months. Her hair had to appear the same in shots taken weeks apart. Thus, it could not be changed.

The family was forced to store new furniture purchased during the shooting of the picture. The heavy articles would have been too difficult to move in and out of the house for a day or two of movie making each week.

"Complete cooperation is imperative in amateur productions," Ruffner said. "Everyone has to agree from the start to carry the work through to completion in spite of the sacrifices which each will have to make. Without such understanding an amateur film is doomed to failure before it is begun."

Authenticity of appearance gave Les Thomson, who played the blind man, several amusing moments. During the shooting on the streets of Sunnyvale, an elderly woman did not see the camera and mistook Thomson for a real blind person. She paused, took a coin from her purse and dropped it into the hat he was holding. The lady walked on without realizing that he was an amateur actor. Thompson later gave the money to a deserving cripple.

Osenda continually was kidded by fellow workmen at the firm where he and Ruffner are employed. Each Thursday he had to stop shaving so that his beard would be the right length for weekend movie making. His beard and clothing were convincing enough to fool a group of real hoboes.

"We accidentally discovered a hobo jungle when we were scouting locations and decided to try to use the men who stayed there in our production," Ruffner explained. "When we were ready to shoot, Eric approachd the men while we stayed out of sight. At first they thought he was one of their kind and offered him some food. He told them, however, that he was one of a group of amateur movie makers who wanted them to act in a picture. They agreed and we moved in with our equipment."

While he was shooting sequences in the hobo jungle, Ruffner made one scene which has brought praise wherever the picture has been shown. It shows the hobo imagining how he would appear in a new suit of clothes. Osenda first appears in his hobo costume and through the use of a lap dissolve he is shown in his imagined finery. Then a lap dissolve is made back to the previous shot.

Work on this scene was so skillfully executed that persons not acquainted with motion picture techniques wonder how it was done. Experienced photographers admit it is one of the best lap-dissolve sequences that they have seen.

Throughout the scene Osenda's pose alters only slightly, in spite of the fact that he had to move between takes to make costume changes. Near perfection was accomplished through the use of diagrams, copious notes and careful markings on the log on which Osenda was sitting. Ruffner's careful planning paid off. The scene was successful on the first attempt.

At a railroad yard, where the opening and closing sequences of the film were shot, the group met a man who had been a bit player in professional motion pictures. He was interested in their picture and introduced them to the yard master.

"Through the cooperation of the two men," Ruffner said, "I was able to shoot scenes which would have been difficult to obtain otherwise. The yard master held up switching several times so that we could get the shots we needed."

After the shooting of the picture was completed, Ruffner and his wife still

(Continued on Page 558)

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FILMING A PRIZE-WINNER

(Continued from Page 556)

had many hours of work ahead of them. One month of spare time was spent in the five editings of the film.

"Many times Harry would remove only two or three frames from a scene," Mrs. Ruffner said. "We had to make certain that the movement of a hand, for example, would run smoothly from shot to shot."

Mrs. Osenda hand lettered the titles for the picture on a long strip of black paper. Ruffner then shot these twice at different exposures on the scroll attachment of his homemade titler. He rewound the film and shot backgrounds of a moving train on the same film at Gold Run in the Sierra Neveda mountains. Of the two titles that Ruffner made, the second proved to be most satisfactory.

While the edited film was being prepared at a laboratory for magnetic sound recording, Ruffner selected background music and wrote three short bits of narration. The background music was recorded on his own recorder and the sound from the tape was fed into his magnetic sound projector as the narration was being read. Sal Pizzo, a San Francisco resident experienced in amateur theatricals, was narrator.

The Ruffners, members of the Westwood Camera Club of San Francisco, shot their film on single-perforated Type A Kodachrome with a Cine Kodak-Special. Daylight conversion filters were used for the outdoor work. Lenses used were a 15mm f/2.7, a 13mm f/1.5 and a 25mm f/1.9.

Among the other 16mm color films which the Ruffners have made is "Catalina Holiday." This picture has received much favorable comment, but has not been entered in amateur competitions because it is longer than most contest rules allow.

Filming Fiesta

Sponsored by the Northern California Council of Amateur Movie Clubs, a "Filming For Fun Fiesta," will be held at the Fairmont Hotel, San Francisco, Saturday and Sunday, October 22 and 23, 1955.

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A banquet will be held Saturday evening at which time there will be a screening of National prize-winning films.

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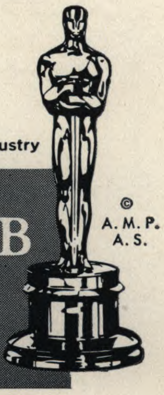

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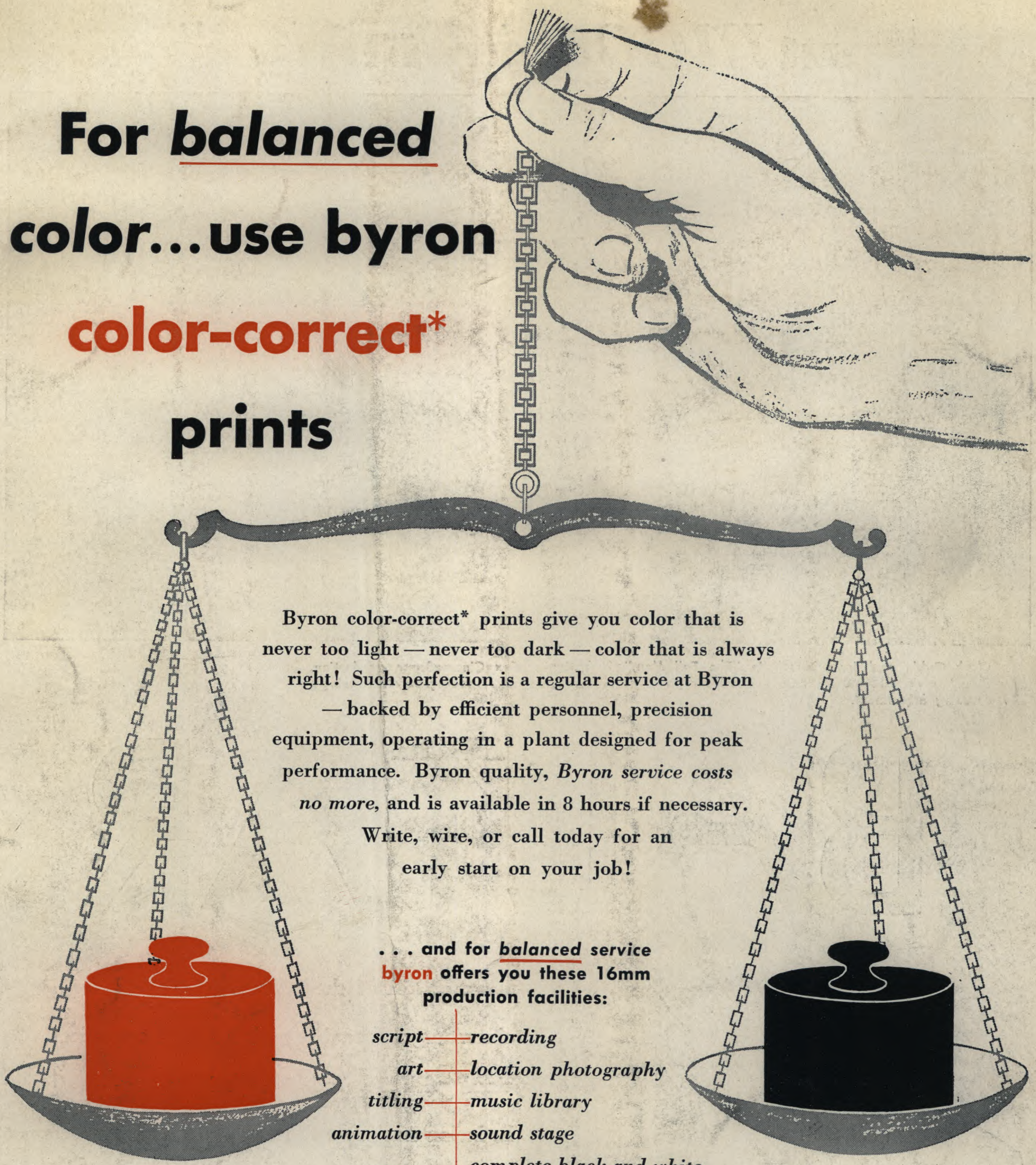

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